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An Address

ENTITLED

SOME THOUGHTS ON CONVULSIONS DURING INFANCY AND CHILDHOOD.

Delivered before the Fylde Medical Society on Nov. 29th, 1904,

BY HENRY ASHBY, M.D. LOND., F.R.C.P. LOND.,

LECTURER ON DISEASES OF CHILDREN, VICTORIA UNIVERSITY.

GENTLEMEN,—I am sorry to confess that I have nothing new or novel to offer you in my address to-night. But I will not pretend to apologise for discussing a subject familiar to every practitioner; the common things of this life are the most important and the common phases of disease are no exception. Movement enters largely into the life of everything that breathes; we are constantly doing something; our muscles are ever on the alert—are relaxing or contracting for the performance of some definite end. Coördinated movements are rendered possible by highly organised nerve centres which, on the one hand, receive impressions from the different sense organs of the body and, on the other hand, send out stimuli by a system of relays to the muscles. The nerve cells store energy ready to be released on call which, passing along the motor paths, evoke the muscular contractions. For the orderly progression of events the nerve cells must be in a normal or stable condition; the movements, whether reflex, instinctive, or voluntary, are all carried out in an orderly and coördinated manner.

In certain morbid states of the nerve cells there is an excessive sensitiveness to impressions or a deficient inhibition and the nerve centres appear to be at the mercy of every chance stimulus which comes along the afferent channels. Then order departs and chaos reigns; uncontrolled nerve discharges take place, giving rise to erratic movements, accompanied by a complete or partial loss of consciousness. In other words, there is a nerve storm which may be local or general and affect both motor and sensory centres. All through infancy the nerve centres are more susceptible to reflex stimulation, or perhaps we should say less under control than in later life, when the higher or inhibitory centres have become developed. The infant readily breaks out into tears, it is easily startled and angered, vomits from slight causes, and its temperature runs up with little reason. This instability or defective power of resistance to stimulation differs greatly in different individuals and certainly runs in families in the same way as epilepsy and insanity. Some infants, in spite of well-marked exciting causes, never suffer from convulsions, while others suffer whenever the digestion goes wrong. Neurotic women are very apt to have infants who suffer from convulsions. Comby relates how a woman who suffered from hystero-epilepsy lost five children from convulsions and a sixth also suffered. This hereditary disposition to convulsions is probably the most important factor with which we have to deal. But a disposition to convulsions may be not only hereditary but acquired, though in any given case both factors may be present. Rickets undoubtedly predisposes to convulsions; perhaps we ought to say that chronic indigestion, with the absorption of toxins into the blood, gives rise both to the bone changes seen in rickets and also renders the nerve centres unstable and ready to discharge from slight stimuli. It is certain that not every rickety child suffers from convulsions but a large proportion of children who suffer from convulsions between the ages of five months and two years are rickety. Given a maximum of hereditary or acquired disposition a minimum of stimulus will give rise to convulsions; or, on the other hand, a minimum of disposition requires a maximum of stimulation to produce the same effect.

Having laid some stress on the predisposing causes of convulsions let us consider the exciting causes or those which immediately precede the attacks. We may divide these for the sake of convenience into three or four groups. *Reflex*, in which the stimulus proceeds from the gastro-intestinal tract as in griping and colic, from the respiratory tract as in whooping-cough or bronchitis, from the internal ear, from the nose or mouth as in painful dentition. *Toxic*, as in the early stage of measles or influenza. *Central*, as in meningitis or syphilis of the brain. *Epileptiform*, when no cause can be found and often associated with signs of belated intelligence. We must, however, remember that often there is no well-marked difference between predisposing and exciting causes or between those which we might classify as central and reflex. It will be convenient to discuss some groups which in practice are fairly common.

Let us then first refer to the convulsions which are not uncommon in the newly born. With regard to their origin let me quote Sir William Gowers.[1] "During the first few days of life convulsions are not uncommon, but they probably always depend on direct injury to the brain during the progress of birth." And again, Spratling writes:[2] "It is a well-known fact that during the first two months of life reflex action is insufficiently developed and convulsions which appear at that time are almost always primarily cerebral and due to hæmorrhage." I cannot agree with these statements. I do not doubt that convulsions due to brain injury may take place in the newly born but I cannot think they are common; I believe they are much more commonly the result of gastro-intestinal disturbances due to artificial feeding and in some instances to epilepsy, the result of intra-uterine brain degeneration or disease.

The convulsions of the newly born are most common in infants who are artificially fed from the first and who are given diluted cow's milk which sets up flatulence and green curdy stools. There are clonic convulsions of the limbs, twitching of the eyelids, eyes, and face, dilated pupils, duskiness, drowsiness, and some fever. The fact that the convulsions are more or less one-sided does not by any means signify that they are not reflex. Any paresis would, of course, suggest organic disease but a slight hemiplegia may follow severe convulsive attacks and disappear in a few days or weeks. The fits may recur from hour to hour and the exhaustion may be extreme. In many cases, as I have already said, the abdomen is distended with gas, there is more or less griping, the stools are unhealthy, and the nates become more or less excoriated. Probably the starting point in these cases is an inflamed and overactive colon; possibly the absorption of toxins may have some influence on the nerve centres. We must bear in mind also that apart from the difficulty that some newly born infants have in digesting cow's milk there is during artificial feeding a greater risk of infection by the mouth than when the infant is fed from the breast. The same hands that attend to the mother's diapers and the infant's napkins prepare the food and feed the infant; the nurse often puts the teat of the feeding-bottle in her mouth before feeding. The newly born infant is very intolerant of infection by the mouth and colitis, fever, erythema, and convulsions result. How careless nurses are in many respects must be apparent to all. I often notice when an infant is brought to me that the feeding-bottle containing the baby's food is carefully wrapped up in a spare diaper, the latter being handy in case of necessity and at the same time fulfils the useful purpose of keeping the bottle warm. Surely no well-trained nurse would be guilty of such an abomination.

My own belief certainly is that convulsions occurring in the newly born, especially if the infant is being artificially fed, are usually reflex or, at any rate, not due to any brain injury. The short-cut cure in such cases is a wet nurse; failing this raw asses' milk or whey made from clean, fresh cow's milk diluted with a solution of milk sugar; and if possible the services of a capable trained nurse should be acquired. In some instances convulsions in the newly born are due to ante-natal causes. Let me illustrate this by a case from my notes and one which is not altogether uncommon. "The patient had an easy birth; he belonged to a neurotic family of seven and came 14 years after the last child; convulsions of a mild type began three days after birth; he was breast fed for eight months; he had no indigestion but the fits recurred from time to time. He walked at two years old. When seven years of age he still suffered from slight fits; head measured 18¼ inches only; he has a high arched palate; he is babyish and mischievous and can only say a word or two but can understand a good deal, but he is clearly imbecile." It is pretty certain that this is not a case of birth injury but of defective development of brain during intra-uterine life, resulting in imbecility

[1] Diseases of the Nervous System, p. 713.
[2] Epilepsy and its Treatment, p. 75.

and epilepsy. It is possible that such cases are syphilitic but of this there was no evidence in the above case.

Let us turn now to the period of dentition which is in the estimation of the public the period *par excellence* for fits. In the language of the out-patient room: "He is plagued with his teeth"; "I have lost four children with teething fits"; "He has fits such as all children have with teething." But the alienist is hardly less emphatic in his estimation of the importance of the period of dentition in causing convulsions. In a recent work I read the following: "It has long been the writer's belief that *dentition when severe and acting on an organism that bears the impress of transmitted weakness of a necessary kind* plays an important part in the production of epilepsy in early life." Another celebrated alienist writes: "I have seen the convulsions of dentition followed by a prolonged delirium ending in idiocy, or in true epilepsy or insanity of adolescence." Surely, as far as dentition is concerned, there is a great deal of exaggeration here and a suggestion of the arrangement by which the tail wags the dog. The period of dentition covers most of the first two years of life; during this time some tooth or other is being cut, or the gums are swelling in anticipation of their eruption. You cannot see lumps of curd or grape skins in the stomach and you forget to put your hand on the abdomen and feel for a griping colon, but you can see the swollen gums or the edge of an incisor tooth and if an explanation of the fit is necessary dentition is there as a very present help in time of trouble. Everyone knows the discomfort and irritability caused by sore gums and stomatitis but when I am told that dentition plays an important rôle in producing epilepsy and insanity I dissent. By far the commonest exciting cause of reflex convulsions is gastro-intestinal disturbance, accompanied by colic and griping, due in many cases at least to overfeeding with cow's milk. The decomposition of the curd plays an important part; the stools are pasty, lumpy, and foul-smelling. In other cases bronchial or naso-pharyngeal catarrh or middle-ear suppuration may be the exciting cause.

One type of reflex convulsions occurring during early life which claims our attention on account of its frequency and importance is spasm affecting the muscles of the glottis and respiration. Child-crowing, as it is called, or laryngismus, is practically always associated with rickets and especially affects infants from the age of four or five months till the end of the second year. Adduction of the cords is easily produced during childhood. The infant cries from slight causes and the cords are approximated for the purpose. Watch an infant under chloroform for an operation; if the operation is commenced before the infant is deeply under the anæsthetic directly the knife cuts the skin there is a noisy inspiration from spasm of the adductors. The same thing happens when vomiting or retching is imminent. Normally the adductors are inhibited during inspiration but the wounded cutaneous nerves cause reflex spasm of the adductors which is, perhaps, a sort of contribution towards a cry. A similar adductor spasm is produced in animals by galvanising the central end of the superior laryngeal nerve and also the splanchnics; Horsley and Semon have shown that stimulation of the base of the left third frontal convolution in the monkey produces adductor spasm and expiratory efforts.

Assuming there is in rickets what Dr. J. F. Goodhart would call an "imbecile respiratory centre," or, in other words, a condition of unstable equilibrium, there is a reflex spasm of the adductors of the cords from slight causes. Among these causes we may mention emotion, such as anger, irritation of the fauces, as in catarrh, and discomfort or pain in the gastro-intestinal tract. We say of an individual in a highly emotional state that he was speechless from anger; the violent effort made to speak prevents the deep inspiration from being taken which is a necessary preliminary for a violent declamation. Watch an attack of laryngismus in an infant. He has an irritable temper, easily provoked; something goes amiss; he gives a series of cries to express dissent; then comes the attempt to make a very deep inspiration in order to give still more emphatic vent to his feelings but he is in too great a hurry to make himself heard and respiration is arrested in what physiologists call "expiratory standstill." Vigorous but futile efforts are made to inspire, while the face works; presently a condition of semi-asphyxia intervenes which inhibits the emotional disturbance and expiratory spasm and air is drawn into the lungs with a crowing sound. Other attacks follow till the child falls asleep. In the slighter attacks there is partial spasm only and the child crows from time to time, or the crowing is continuous both during the day and during sleep. In some cases of laryngismus there is an association of tetany, the overflow of energy passing into the muscles of the limbs and giving rise to continuous spasm. Let us remember there are other forms of laryngeal spasm besides laryngismus in association with rickets. The congenital stridor of young infants is, I believe, a reflex spasm. In croup and whooping-cough a similar spasm occurs.

Convulsions in some instances are of cerebral origin, being due to some form of brain irritation. Among these causes may be meningitis, encephalitis, thrombosis, hæmorrhage, tumours, and syphilis. In meningitis the fits may occur at quite the initial stage or towards the end of the case and herald the fatal termination. In the former case the diagnosis may be difficult. The question will present itself, Are the convulsions reflex from the alimentary canal or are they due to some commencing organic disease of the brain such as meningitis? I doubt if the nature of the fits themselves will lend much assistance in the diagnosis, as both reflex and fits secondary to some brain irritation may be more or less one-sided and accompanied by a temporary retraction of the head and coma. In fact, we may have the same type of fit whether there is an early meningitis or tumour, or a toxic condition of blood with or without reflex irritation.

There is, however, one type of convulsion occurring during infancy which is distinctly of the Jacksonian type and that is a syphilitic softening of the cortex of the brain. An infant a few months old who has suffered from coryza, erythema, and epiphysitis begins to suffer from slight one-sided convulsions; there is a slight series of twitchings of an arm or leg which frequently recur. There is a momentary loss of consciousness or only a dazed look. Later the twitchings may affect the opposite side and then gradually a contracture of the flexures of the arm and leg first affected takes place and the infant shows signs of less and less intelligence. The post-mortem examination shows a patchy softening of the grey matter of the cortex with degeneration of the arteries. Sclerosis seems to follow the softening. Frequently recurring slight fits without apparent cause during infancy suggest epilepsy associated with more or less imbecility or mental feebleness. The convulsions may be so slight as to be overlooked or may pass as "faints." But as time goes on it becomes only too clear that the mental powers are not developing at the normal rate. The infant takes no notice of his friends, or he is constantly screaming and giving the unfortunate mother no rest day or night; later he is mischievous and passionate. Slight general convulsions which frequently recur without apparent cause and with signs of delayed intelligence are of the worst possible augury with regard to the child's future. This combination of imbecility with fits would seem to point to some failure of development taking place during ante-natal life which interferes with the higher centres and renders the nerve cells unstable.

Where does the dividing line come in between infantile or reflex convulsions and epilepsy? Between a temporary condition of unstable nerve cells and a more permanent condition of instability? In the majority of cases of infantile convulsions, especially those which are associated with rickets, the tendency to convulsions becomes less and less as the child becomes older and finally they cease to recur. On the other hand, we find perhaps 10 per cent. or more of those who suffer from epilepsy in later life have suffered from infantile convulsions. Then there are a certain number of cases, especially in children from three years to seven years old, in which the diagnosis is uncertain as to whether they are reflex or are true epilepsy. If we can clearly recognise some definite reflex cause such as worms, dyspepsia, or a febrile attack as the exciting cause, we may have good reason to look forward hopefully to the future. The convulsions may be reflex occurring in a neurotic child and they may probably cease to occur as the nervous system becomes more robust and less easily influenced by eccentric stimulation. If the attacks recur without obvious cause and especially if there is any mental peculiarity about the child the prognosis is much more grave. In any case when fits occur in early or late childhood they must be taken as evidence of a neurotic constitution which will require judicious handling all through early life.

So far we have been discussing attacks of convulsions

which, however much they may threaten life during the actual attack, pass off and leave no temporary or permanent disability. There are, however, certain attacks which are clearly very serious in their nature and when the storm has passed away it is found that a certain amount of wreckage remains. In many cases it is certain that severe damage has been done, but it may be impossible to say how or what. We ask ourselves, Have the convulsions been toxic?—as, for instance, when they occur in the early stage of measles,—Has a meningeal of multiple bleeding taken place which has damaged some nerve paths or centres? In other words, has the lesion been a consequence of the fit? On the other hand, has there been a thrombosis or focal encephalitis which has given rise to both the convulsions and the paralysis which is left? In some instances at least there is post-mortem evidence of multiple hæmorrhages which suggest venous engorgement secondary to the convulsion and it seems probable that in some cases this is the true explanation. But, on the other hand, we find an anterior poliomyelitis and also convulsions and a hemiplegia of cerebral origin occurring in the course of measles, and one is tempted with the suggestion that in one case there is a focal inflammation of the grey matter of the cord and in the other case a focal inflammation of the grey matter of the cortex.

In these serious attacks of convulsions there is usually more or less high fever, perhaps 104° or 105° F., one convulsive seizure is followed by another, perhaps for many hours, and is followed by deep coma which lasts from 24 hours to a week or even more. This state closely resembles the status epilepticus of adults and has been called the status eclampticus. Doubtless such attacks have done duty on various occasions for "brain fever." Some of these attacks come on during whooping-cough, measles, or other infective diseases. Hemiplegia is one of the most important complications of this state; the paralysis may not be noticed till after the convulsions have passed away. In some cases it is slight and temporary; in others it is severe and remains for life and the paralysed limbs become spastic. In the latter case there is often feeble-mindedness and sometimes post-hemiplegic epilepsy. Among the feeble-minded children brought up for examination at the special schools in Manchester 10 per cent. had hemiplegia dating from attacks of infantile convulsions. But apart from any paralysis a serious convulsion may leave behind it a condition of the mental powers altered much for the worse. Whether this is the result of the nerve storm or owes its origin to some cause such as encephalitis is uncertain. Let us take the following case as an illustration.

The patient was a boy, aged four years. The family history was good. He learned to walk at 17 months and talked at two years. He was a boy of normal intelligence till he had measles at three and a half years of age. He was suddenly seized with convulsions and high fever and was in deep coma for two days, the rash of measles appearing on the third day. After recovering consciousness he was blind for a few days and did not speak for several weeks. Six months after his speech was still indistinct. Since the convulsions his temperament has changed; from being an easily managed boy he is now irritable and difficult to manage. He is very babyish for his age, is mischievous and destructive, and his attention is constantly wandering.

This is, perhaps, not an uncommon type of case; there are a series of fits followed by coma; when the patient recovers consciousness it becomes clear that some damage has been done to the highest level centres; but what the nature of the damage it is not easy to say. In not a rare class of case the child recovers completely from the status eclampticus except that for many weeks he is blind. In epilepsy visual aurae are not uncommon, the patient sees flashes of light or there is sudden darkness before the fit supervenes. In rare epileptic seizures the sudden and temporary loss of sight is the only phenomenon which takes place. Very possibly the accounts handed down to us from past ages of people being suddenly smitten with blindness were cases of epilepsy. Dr. W. W. Ireland speaks of a boy who used to say that at the onset of a fit his "e'en gang black." It seems likely that the visual area of the cortex is involved in the discharge and a state of exhaustion remains. Let me quote the following case.

The patient was aged one year. The child had severe whooping-cough for a week or ten days, when he was seized with general convulsions lasting for several hours; these were followed by deep coma for 12 hours. When I saw him with Mr. J. H. Hacking he was collapsed and insensible, with contracted pupils and a temperature of from 101° to 102° F. He gradually recovered consciousness but remained drowsy for some days, then it was noticed that he could hear what was going on, as, for instance, the preparation of his meals, but could not see. When I saw him again some two months after the fits he was bright and lively but was blind. The pupils acted to light and were normal; the optic discs were also normal. He could sit up, chirp and crow, and say "dada" and "mamma," he could not see his bottle, but when it was put into his hands he grasped it and carried it to his mouth. He took no notice of a bright electric light brought near to his face. From this time he gradually improved and between three and four months after the attack he could see as well as ever. I have never seen a case in which permanent loss of sight followed convulsions. In these cases the pupils are active and normal, which would suggest that the lesion or failure of function is higher up than the pupil reflex centre.

Rare cases have been described in which there was an attack of convulsions followed by coma and when consciousness was regained it was found that the patient was deaf. This was so in the following case.

The patient was a girl, aged eight years. Before the attack she was a bright, intelligent girl in the second standard at school. One hot day in July, 1904, after returning from school she was seized with convulsions and high fever. The convulsions lasted for seven hours; she was comatose for more than a week. After regaining consciousness she was drowsy for some days and found to be completely deaf. According to her mother's account there was no discharge from the ears or any pain at any time. She could not hear a word but answered written questions in a low voice. Examined by Mr. F. H. Westmacott three months after the attack he reported that she could hear the tuning-fork held in contact with the skull but not when held close to her ears. There was a perforation of one drum but no discharge; the membranes were thickened and drawn inwards and the ossicles were fixed. What lesion had taken place during the acute attack it is difficult to say—possibly an acute inflammation of the labyrinth and middle ear without pus. Five months after she was still completely deaf and waiting for admission to a school for the deaf and dumb.

In some cases a temporary aphasia is left after a severe series of convulsions, either with or without being associated with hemiplegia. In one case coming under my observation a boy, aged two and a half years, had a series of severe convulsions in the course of whooping-cough, which was followed by aphasia which lasted two months. There was no deafness but he answered by gesture and pushed his plate when he wanted more to eat. During this period he was heard to talk once or twice in his sleep. When once he began to say a word or two he quickly regained his old power of chattering and no difficulty of speech remained. I have related these cases as I was anxious to call attention to the alarming complications which at times accompany severe convulsions. The onset is sudden and the fits are severe and follow one another rapidly. Then comes the comatose stage which is often prolonged for a week or more. In some of these cases death takes place and nothing is found post mortem, at least to the naked eye, but a very wet brain and fluid in the lateral ventricles. Presumably the effused fluid is secondary to the congestion of the vessels, the result of the severe convulsions. In other cases recovery takes place slowly without any complications remaining. I have already pointed out that the pathology of the cases in which complications remain perhaps for many years after the fit has passed away is uncertain. Post-mortem examinations are badly wanted and a very complete histological examination of the brain is required.

To attempt to discuss the treatment of convulsions would mean discussing the treatment of the many diseases or conditions with which convulsions are associated. This I will not attempt but will be content with making a few remarks. As far as the acute stages of tonic and clonic spasms are concerned we shall find subcutaneous injections of morphine the most powerful remedy for quickly allaying the irritability of the nerve centres and checking the convulsive movements. This is true whether colic, meningitis, or laryngismus is associated with the convulsions. A strong infant, six months old, may be given one-fortieth of a grain and an infant one year old a twentieth subcutaneously. Avoid the use of morphine in wasted and feeble infants and also in newly born or very young subjects. Inhalation of chloroform is another quickly acting remedy but its action soon ceases when withdrawn. Chloral given by the rectum is

slower in action but its effect is more durable. Four or five grains of chloral dissolved in water or in egg-and-milk mixture may be given to an infant aged from six months to a year. The bromides are too slow in action to be of any use during the fits but later mixed bromides may be given to prevent their recurrence. It is wise in all cases to give calomel by the mouth if the patient can swallow to clear away any foul curd or irritating matter in the intestines.

What can be done to prevent the continued and dangerous irritability of the nerve centres? I have at times seen infants with simple laryngismus inclosed in steam tents, in hot stuffy rooms, where no outside air has been admitted for weeks. We shall all agree that instead of being kept in a used-up hot-house atmosphere they ought to have been enjoying the breezes on the sea shore. What we want is a hardening and bracing up of the nervous centres and an improved condition of health. For this purpose a hot-house atmosphere is the worst possible. No doubt too great changes of temperature are not to be recommended all at once, especially in those cases where laryngismus is associated with laryngeal or bronchial catarrh. Give the child a warm bath every morning and then sponge or douche him with cold salt water, taking care to rub dry and get a reaction. Give him more and more fresh air every day and get him off to the seaside as soon as possible. The success which has attended the open-air treatment of the pneumonias, of whooping-cough and measles should open our eyes to what can be done in this direction in other diseases, such as the functional diseases of the nervous system, during early life. In all forms of convulsions, especially those associated with rickets, open-air treatment is likely to be successful. There can be no difficulty in summer in keeping the infant out all day and supplying him with fresh air freely at night. In colder weather great attention should be paid to the clothing, keeping the feet warm, and sheltering from high and blustering winds. If these matters are attended to let the patient be outside in the coldest weather. The diet must be carefully regulated; infants suffering from convulsions are often given too much milk, their stools are foul and pale; intestinal intoxication plays an important rôle alike in rickets, convulsions, and epilepsy.

What are we to advise with regard to the fits of older children, whether admittedly epileptic or belonging to a borderland class, which we call "reflex fits," but with a certain mental reservation? Diet is of great importance and a careful consideration of the idiosyncrasies of the individual. Speaking generally, a mixed diet, moderate in amount, avoiding overfilling the stomach and overworking the digestive organs, will answer best in the long run. To forbid meat and to allow the child to take large quantities of starches and sugar is bad policy. Heavy meals of oatmeal porridge, rice pudding, and bread-and-butter are likely to lead to intestinal fermentation and distension of the abdominal organs with gases. It is well in the first place to cut down the starches by forbidding porridges and puddings and only small quantities of bread-and-butter. Cocoa, with egg and toast for breakfast; a reasonable quantity of beef or mutton or poultry for dinner with cooked vegetables and stewed fruits; and cocoa, toast, and treacle or honey for tea. Some children are given too much milk; mothers will boast that by hook or by crook they get into their children a quart of milk a day in addition to their meals and expect to be commended for their motherly instincts. Then they say that the child has lost his appetite and meat essences and raw beef juice are given at odd times; if these fail to cure the child they suggest a tonic and port wine at 11 in the morning. All these maternal insanities have to be combated, a carefully selected and frugal diet has to be prescribed, some cascara in divided doses or a saline mineral water, to secure regular and fairly free evacuation of the bowels.

Then there remains the important question of school which is so often put to us by parents. Probably the answer is expected, "On no account let the child do any lessons but let him 'run wild' for six months." If "running wild" means involuntary idleness, an aimless and empty existence without discipline and control, and a more than ever concentration on self, then "running wild" is the worst possible treatment for fits. By all means arrange for many hours in the open air but find objects of interest, outdoor work, and outdoor play. Then consecrate some part of the day, be it only a couple of hours, to some indoor employment. There is no real fear of overworking juvenile brains if the subject matter is not concerned with desks and books but is made interesting and the employment or lessons are short and varied and intervals of outdoor relaxation are frequent. The child is a social animal and the society of other children, if well under control, has a powerful influence for good and the more neurotic the child the more need is there for his contact with others. To allow the neurotic child to feel that he is the first to be considered, to let him think that every little ache, every little disappointment, and every discomfort are sore trials is to be doing all that can be done to blight his future. Give him daily employment, everything well within his powers, and look for accurate performance. Defer if you will all abstract learning till a later day, but find for him an active and occupied life; lead him a firm hand that may help to forge and strengthen the links of voluntary power and self-control which will prove important factors in preventive medicine and save many a sorrow.

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INTRODUCTION.

THIS advocacy of an active treatment for pneumonia may be an unnecessary pleading with some. If so they are the exception. The present fashion is rather the other way, and patients are lucky who may find in the profession some of that hopefulness to teachings. My theme is: "*Non nocere* hope lies in the fact that pneumon disease killing the patient on the f day but later, if fatal. Our oppor precious interval of safety and to s The weapons are those of nature, the lymphatic circulation, and such as may oppose the congulation of reabsorption. This is the gener endeavour briefly to describe.

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Not very long ago an important de United States on the relative value of m or by vascular depressants. That any du upon so fundamental a question describes t position and our own. But the familiar request, the treatment of pneumonia" cannot be gratified in a few words. There is no single treatment for the disease, but only individual treatments for the sufferers—a reservation which must apply to any suggestions laid before you to-day.

Only two months ago my senior consulting colleague, Sir Henry Pitman, now in his ninety-seventh year, who retired from the active staff of St. George's Hospital before I was born, was telling me in his firm clear voice, "We used to bleed them in those days and they got well." Bleeding was, however, only part of the treatment. We seem to have lost the old art of treating pneumonia; we have not at present developed any new one and we are now largely living in the future hope of an antidote and of a preventive. It is true that here and there tradition has preserved in old medical families much of that which was good in the old-time treatment, and, again, a few men of exceptional clinical instinct and enterprise have struck out new lines for themselves with encouraging results, but the representative body of medicine has been under a spell and its oracles are dumb.

THERAPEUTIC INACTIVITY AND ITS CAUSES: IS IT JUSTIFIABLE?

On one point only I do not hesitate to be dogmatic. In presence of pneumonia we should be "up and doing." Hopefulness is essential to our usefulness and a passive attitude is hardly consistent with our recent advances in

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pathology and pharmacology. The therapeutic paralysis which had crept over medicine early in the last century was an after-wave of the destructive scepticism of the eighteenth century. As a fact, medicine and therapeutics were ill prepared then for the ordeal of critical analysis or to supply experimental evidence, and further, havoc was worked by the statistical method, which was applied prematurely to clinical questions from a growing desire for mathematical proofs. The calculating machine was right but what of the facts? Common sense rejects such sweeping conclusions as that pneumonia is beyond the pale of our therapeutics, that all forms of treatment are useless or bad, and that the best course is "no treatment." To save appearances the mischievous euphemism "expectant treatment" was invented and it usurped the place of a precept. We have witnessed its paralysing influence in phthisis, in typhoid fever, and almost to the present day in pneumonia where the figures are alleged to show a fairly uniform death-rate under all varieties of therapeutic conditions. Were this allegation admissible there would be no object in my further addressing you. But it shall not pass unchallenged. In the first place the cases grouped together are of absolutely different kinds. Pneumonias supervening in exhausted vitality from extreme age, chronic diseases or intoxications, &c., are a *modus moriendi* and are inadmissible as tests for the value of remedies. Others are, owing to the relative mildness of the attack or to the superior stamina of the subjects, capable of spontaneous recovery without, or even in spite of, any interference. These, too, are not available as tests.

Moreover, even in the remaining group which is the real field for therapeutic usefulness there are two unknown quantities varying with the individual—the relative virulence and amount of the infection and the innate power of resistance variously modified; and these were often the deciding factors when our treatment had been credited with success or failure. Further doubts also arise from our clinical impressions. We have known remedies to be triumphantly introduced in modern therapeutics which had previously been discredited as inefficient because then employed in cases, in circumstances which rendered them inoperative. Of these influences, and above all the conflicting and often discouraging results of individual practice, the puzzle and to cramp our recognised teachings [illegible]atic confidence and discrimination have almost [illegible] in our generation, whilst the fatality of the [illegible]ntinues its appeal.

[illegible]le the "specifics," of which there is a perennial [illegible]om abroad, have not obtained a foothold in this [illegible], for the good news that "pneumonia is under [illegible]" has not yet been flashed round the world. The [illegible]e also applies to the only definite plan of treatment which now obtains a large following, that of raising the vital functions by peripheral stimulations. You have all heard, and some of you may have practical experience, of these bathings (only admissible in the case of children), sponging, cold packings, affusions, alternating cold and hot applications, and other devices for which doubtless there is much to be said. But this Spartan method claims so much time and energy as practically to exclude other treatment more suited to the urgencies of the hour. Very serious, too, is the responsibility of going counter to nature's prayer for rest. And how difficult to apportion the stress of this responsible treatment to the requirement and to the capabilities of each case! In short, I cannot regard this as our final therapeutic formula for pneumonia.

To recapitulate. Our present position is one of perplexing uncertainty: *ex cathedrâ* no strong line of treatment nor any guidance as to the value of the various opposing suggestions; on the other hand, definite forms of treatment are recommended by small minorities, viz.: (1) by individual believers in some specific remedy, and (2) by the supporters of plans of management, such as (*a*) the antiphlogistic or depressing plan, (*b*) the tonic plan, (*c*) the complete rest and feeding plan, and (*d*) the stimulating and rousing plan. The result as regards practice is that the bulk of the profession deem it wise to remain neutral and the patients bear the consequences. This is why, so late in the history of pneumonia I venture to invite you to join me in searching out the principles of its treatment. I propose to sketch the line which I am now following in connexion with a case as an illustration. Taken alone it can prove nothing, for all cases differ. But other cases, perhaps many of them, may closely resemble this one and might be equally benefited by the same measures.

THE MARCH OF THE DISEASE.

Pneumonia is known to be only one of the possible manifestations of a more or less general infection. Departures from the classical types had long ago been noticed in which was described a period of incubation lasting a week or more. The actual invasion may occur elsewhere before striking at the lung, or rarely the lung may escape almost entirely and the diplococcus may expend its virulence upon other parts, particularly the serous membranes and the joints. The mysteries enacted within the lung are in a great measure hidden from us. The rigor and attendant collapse may be regarded as a violent shock to the medulla through its afferent nerves, or perhaps as an invasion of its tissues. So great a commotion could not be the deed of one or of a thousand microbes; the rigor has therefore the significance of the time signal of the exploding effect upon the nervous system or of the entrance into the blood of a charge which had for some time been accumulating somewhere at the periphery, in the tonsils, the lungs, or elsewhere. Henceforth the lungs are at the mercy of the enemy, and yet not in their entirety, for there is significance in the following facts: (1) that in their greater part they remain free from invasion; (2) that the invasion is not only *not general* but *not even multiple* in either lung though it may occur in both; and (3) that a large area is affected at once and that the secondary infections which may occur are commonly continuous (as though by extension) with the main lesion. All this, as well as the rigor itself which is suggestive of some embolism, points to a definitely local invasion and to a lodgment of infective material, more probably in the air tract or blood-vessels than in the lymphatics.

We cannot stop to consider the serial evolution in the lung of the several morbid stages which are sometimes displayed post mortem when a progressive invasion ends in that wholesale phagocytic disaster and annihilation known as "grey hepatisation." Red hepatisations, airless congestions verging on consolidation, partial congestive condensations of sticky semi-œdematous consistence, and, finally, intense congestions without atelectasis, these may all be found adjacent to the earlier lobar lesion. I mention them in illustration of the stages which are noted in our clinical signs. That the main consolidation is a regional reaction to the original lodgment is rendered probable by the post-mortem appearances described. But this too liberal provision by nature to lock up the invaders is in itself a danger. As pointed out by my friend Dr. Andrew H. Smith of New York, the extensive effusion of fibrin is really a "breeding ground" for the diplococci, and this enormous supply of pabulum is the explanation for the overwhelming amount of poison manufactured by them in the lung and thrown into the circulation. According to this view the coagulation of the fibrin is *the danger*, and this should be borne in mind in our treatment.

THE CLINICAL STAGES.

The rigor constitutes a serviceable time-mark; but the following events are not to be registered so definitely and are perhaps not identically timed in all cases. Tubular breathing becomes audible earlier in some, later in others, but seldom before the lapse of 36 hours, and then rapidly increases in intensity and extent. During the interval there is a characteristic suppression of the vesicular and bronchiolar respiratory murmur over the affected area, which in the absence of any bronchitis carries with it the interpretation, also supported by the appearance of rusty expectoration, that the congestion is already so heavy as to impede the elastic function of the alveoli and partly to obstruct the entrance of air. Capillary oozing, which now sets in more freely, probably relieves the local turgor and the wall tension to the extent of restoring some vesicular respiration of a modified type. The advent of the fine inspiratory crepitation informs us that the part is not consolidated but that exudation of plasma has begun and that it has not yet filled the alveoli. Its continuance in some cases side by side with tubular breathing is usually regarded as evidence of a progressive extension of the pneumonia. But in some cases we might draw the happier inference that the plasma has remained in a semi-fluid state and does not yet completely plug the air cells.

Another important inference also arises. Fine crepitation tells that at that stage the corresponding bronchioles are not sealed, though they may become sealed subsequently. And I may in passing draw your attention to the fact that neither

slower in action but its effect is more durable. Four or five grains of chloral dissolved in water or in egg-and-milk mixture may be given to an infant aged from six months to a year. The bromides are too slow in action to be of any use during the fits but later mixed bromides may be given to prevent their recurrence. It is wise in all cases to give calomel by the mouth if the patient can swallow to clear away any foul curd or irritating matter in the intestines.

What can be done to prevent the continued and dangerous irritability of the nerve centres? I have at times seen infants with simple laryngismus inclosed in steam tents, in hot stuffy rooms, where no outside air has been admitted for weeks. We shall all agree that instead of being kept in a used-up hot-house atmosphere they ought to have been enjoying the breezes on the sea shore. What we want is a hardening and bracing up of the nervous centres and an improved condition of health. For this purpose a hot-house atmosphere is the worst possible. No doubt too great changes of temperature are not to be recommended all at once, especially in those cases where laryngismus is associated with laryngeal or bronchial catarrh. Give the child a warm bath every morning and then sponge or douche him with cold salt water, taking care to rub dry and get a reaction. Give him more and more fresh air every day and get him off to the seaside as soon as possible. The success which has attended the open-air treatment of the pneumonias, of whooping-cough and measles should open our eyes to what can be done in this direction in other diseases, such as the functional diseases of the nervous system, during early life. In all forms of convulsions, especially those associated with rickets, open-air treatment is likely to be successful. There can be no difficulty in summer in keeping the infant out all day and supplying him with fresh air freely at night. In colder weather great attention should be paid to the clothing, keeping the feet warm, and sheltering from high and blustering winds. If these matters are attended to let the patient be outside in the coldest weather. The diet must be carefully regulated; infants suffering from convulsions are often given too much milk, their stools are foul and pale; intestinal intoxication plays an important rôle alike in rickets, convulsions, and epilepsy.

What are we to advise with regard to the fits of older children, whether admittedly epileptic or belonging to a borderland class, which we call "reflex fits," but with a certain mental reservation? Diet is of great importance and a careful consideration of the idiosyncrasies of the individual. Speaking generally, a mixed diet, moderate in amount, avoiding overfilling the stomach and overworking the digestive organs, will answer best in the long run. To forbid meat and to allow the child to take large quantities of starches and sugar is bad policy. Heavy meals of oatmeal porridge, rice pudding, and bread-and-butter are likely to lead to intestinal fermentation and distension of the abdominal organs with gases. It is well in the first place to cut down the starches by forbidding porridges and puddings and only small quantities of bread-and-butter. Cocoa, with egg and toast for breakfast; a reasonable quantity of beef or mutton or poultry for dinner with cooked vegetables and stewed fruits; and cocoa, toast, and treacle or honey for tea. Some children are given too much milk; mothers will boast that by hook or by crook they get into their children a quart of milk a day in addition to their meals and expect to be commended for their motherly instincts. Then they say that the child has lost his appetite and meat essences and raw beef juice are given at odd times; if these fail to cure the child they suggest a tonic and port wine at 11 in the morning. All these maternal insanities have to be combated, a carefully selected and frugal diet has to be prescribed, some cascara in divided doses or a saline mineral water, to secure regular and fairly free evacuation of the bowels.

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INTRODUCTION.

THIS advocacy of an active treatment for pneumonia may be an unnecessary pleading with some. If so they are the exception. The present fashion is rather the other way, and patients are lucky who may find in the body of the profession some of that hopefulness too foreign to its teachings. My theme is: "*Non nocere, sed agere.*" Our hope lies in the fact that pneumonia is not a fulminant disease killing the patient on the first or even the second day but later, if fatal. Our opportunity is to utilise that precious interval of safety and to strike early and strongly. The weapons are those of nature, provided by the heart and the lymphatic circulation, and such simple and safe remedies as may oppose the coagulation of fibrin and encourage its reabsorption. This is the general plan which I must endeavour briefly to describe.

THE PRESENT SITUATION.

Not very long ago an important debate was held in the United States on the relative value of medication by tonics or by vascular depressants. That any doubt should exist upon so fundamental a question describes the therapeutic position and our own. But the familiar request, "Give us the treatment of pneumonia" cannot be gratified in a few words. There is no single treatment for the disease, but only individual treatments for the sufferers—a reservation which must apply to any suggestions laid before you to-day.

Only two months ago my senior consulting colleague, Sir Henry Pitman, now in his ninety-seventh year, who retired from the active staff of St. George's Hospital before I was born, was telling me in his firm clear voice, "We used to bleed them in those days and they got well." Bleeding was, however, only part of the treatment. We seem to have lost the old art of treating pneumonia; we have not at present developed any new one and we are now largely living in the future hope of an antidote and of a preventive. It is true that here and there tradition has preserved in old medical families much of that which was good in the old-time treatment, and, again, a few men of exceptional clinical instinct and enterprise have struck out new lines for themselves with encouraging results, but the representative body of medicine has been under a spell and its oracles are dumb.

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Moreover, even in the remaining group which is the real field for therapeutic usefulness there are two unknown quantities varying with the individual—the relative virulence and amount of the infection and the innate power of resistance variously modified; and these were often the deciding factors when our treatment had been credited with success or failure. Further doubts also arise from our clinical limitations. We have known remedies to be triumphantly reinstated in modern therapeutics which had previously been rejected as inefficient because then employed in cases, in doses, or in circumstances which rendered them inoperative. The effect of these influences, and above all the conflicting and too often discouraging results of individual practice, has been to puzzle and to cramp our recognised teachings till therapeutic confidence and discrimination have almost disappeared in our generation, whilst the fatality of the disease continues its appeal.

Meanwhile the "specifics," of which there is a perennial supply from abroad, have not obtained a foothold in this country, for the good news that "pneumonia is under control" has not yet been flashed round the world. The same also applies to the only definite plan of treatment which now obtains a large following, that of raising the vital functions by peripheral stimulations. You have all heard, and some of you may have practical experience, of these bathings (only admissible in the case of children), spongings, cold packings, affusions, alternating cold and hot applications, and other devices for which doubtless there is much to be said. But this Spartan method claims so much time and energy as practically to exclude other treatment more suited to the urgencies of the hour. Very serious, too, is the responsibility of going counter to nature's prayer for rest. And how difficult to apportion the stress of this responsible treatment to the requirement and to the capabilities of each case! In short, I cannot regard this as our final therapeutic formula for pneumonia.

To recapitulate. Our present position is one of perplexing uncertainty: *ex cathedrâ* no strong line of treatment nor any guidance as to the value of the various opposing suggestions; on the other hand, definite forms of treatment are recommended by small minorities, viz.: (1) by individual believers in some specific remedy, and (2) by the supporters of plans of management, such as (*a*) the antiphlogistic or depressing plan, (*b*) the tonic plan, (*c*) the complete rest and feeding plan, and (*d*) the stimulating and rousing plan. The result as regards practice is that the bulk of the profession deem it wise to remain neutral and the patients bear the consequences. This is why, so late in the history of pneumonia I venture to invite you to join me in searching out the principles of its treatment. I propose to sketch the line which I am now following in connexion with a case as an illustration. Taken alone it can prove nothing, for all cases differ. But other cases, perhaps many of them, may closely resemble this one and might be equally benefited by the same measures.

THE MARCH OF THE DISEASE.

Pneumonia is known to be only one of the possible manifestations of a more or less general infection. Departures from the classical types had long ago been noticed in which was described a period of incubation lasting a week or more. The actual invasion may occur elsewhere before striking at the lung, or rarely the lung may escape almost entirely and the diplococcus may expend its virulence upon other parts, particularly the serous membranes and the joints. The mysteries enacted within the lung are in a great measure hidden from us. The rigor and attendant collapse may be regarded as a violent shock to the medulla through its afferent nerves, or perhaps as an invasion of its tissues. So great a commotion could not be the deed of one or of a thousand microbes; the rigor has therefore the significance of the time signal of the exploding effect upon the nervous system or of the entrance into the blood of a charge which had for some time been accumulating somewhere at the periphery, in the tonsils, the lungs, or elsewhere. Henceforth the lungs are at the mercy of the enemy, and yet not in their entirety, for there is significance in the following facts: (1) that in their greater part they remain free from invasion; (2) that the invasion is not only *not general* but *not even multiple* in either lung though it may occur in both; and (3) that a large area is affected at once and that the secondary infections which may occur are commonly continuous (as though by extension) with the main lesion. All this, as well as the rigor itself which is suggestive of some embolism, points to a definitely local invasion and to a lodgment of infective material, more probably in the air tract or blood-vessels than in the lymphatics.

We cannot stop to consider the serial evolution in the lung of the several morbid stages which are sometimes displayed post mortem when a progressive invasion ends in that wholesale phagocytic disaster and annihilation known as "grey hepatisation." Red hepatisations, airless congestions verging on consolidation, partial congestive condensations of sticky semi-œdematous consistence, and, finally, intense congestions without atelectasis, these may all be found adjacent to the earlier lobar lesion. I mention them in illustration of the stages which are noted in our clinical signs. That the main consolidation is a regional reaction to the original lodgment is rendered probable by the post-mortem appearances described. But this too liberal provision by nature to lock up the invaders is in itself a danger. As pointed out by my friend Dr. Andrew H. Smith of New York, the extensive effusion of fibrin is really a "breeding ground" for the diplococci, and this enormous supply of pabulum is the explanation for the overwhelming amount of poison manufactured by them in the lung and thrown into the circulation. According to this view the coagulation of the fibrin is *the danger*, and this should be borne in mind in our treatment.

THE CLINICAL STAGES.

The rigor constitutes a serviceable time-mark; but the following events are not to be registered so definitely and are perhaps not identically timed in all cases. Tubular breathing becomes audible earlier in some, later in others, but seldom before the lapse of 36 hours, and then rapidly increases in intensity and extent. During the interval there is a characteristic suppression of the vesicular and bronchiolar respiratory murmur over the affected area, which in the absence of any bronchitis carries with it the interpretation, also supported by the appearance of rusty expectoration, that the congestion is already so heavy as to impede the elastic function of the alveoli and partly to obstruct the entrance of air. Capillary oozing, which now sets in more freely, probably relieves the local turgor and the wall tension to the extent of restoring some vesicular respiration of a modified type. The advent of the fine inspiratory crepitation informs us that the part is not consolidated but that exudation of plasma has begun and that it has not yet filled the alveoli. Its continuance in some cases side by side with tubular breathing is usually regarded as evidence of a progressive extension of the pneumonia. But in some cases we might draw the happier inference that the plasma has remained in a semi-fluid state and does not yet completely plug the air cells.

Another important inference also arises. Fine crepitation tells that at that stage the corresponding bronchioles are not sealed, though they may become sealed subsequently. And I may in passing draw your attention to the fact that neither

during its effusion nor during its reabsorption does any of the plasma dilute the tenacious hyaline mucus which appears to be derived exclusively from the congested bronchioles. It almost seems as though the spongy tissue were in a retentive attitude or its abnormal contents too sticky for ready expulsion. This stagnation *in profundis* in spite of open ways is still more striking in connexion with the looser and larger bubblings of crepitatio redux. The cases of persistent fine crepitation on the one hand, and on the other the much more unusual cases where even medium-sized bronchi are plugged by overbrimming exudation, serve to demonstrate that the degree of the exudative process and perhaps its quality may vary widely.

Let us bear in mind these successive changes corresponding to the five clinical stages of (1) invasion, (2) congestion, (3) exudation, (4) consolidation, and (5) resolution. I was almost passing over the highly suggestive phenomena of crisis, not so abrupt as the initial rigor, and yet sufficiently sudden and rapid as to remind us of a vascular if not of a vaso-motor event on a large scale. The warm sweat of recovery, conceivably excited by the products of the ripening intra-alveolar fibrin, just as the cold sweat of grey hepatisation is determined by the massive outpouring of the toxins, however it may otherwise work, certainly operates towards temporarily reducing the vascular fulness and stagnation. Within a few hours congealed life is started afresh into activity and the shrinking fibrin releases its pressure upon the collapsed or obstructed blood capillaries. Circulation is restored and the rest is a huge phagocytic banquet. There are other sides to the clinical picture—the cardiac, the hepatic, and the renal, but I must pass on to our chief subject.

THE VARIOUS ASPECTS OF TREATMENT.

(*a*) If we could, we should prefer to forestall the disease; this in the future will become the preventive treatment by immunisation. (*b*) If we knew, we should stop the invasion at its onset, by the wholesale poisoning of the micro-organisms. But meanwhile during the remaining interval of our ignorance the mortality is but slightly diminished by (*c*) the restorative and (*d*) the symptomatic treatment, the need for which will never cease. We want something more, (*e*) a curative, or at least palliative, treatment on the best rational lines. This we can study to-day in the brighter light of modern pathology.

The definite objects before us are: (1) To arrest the morbid process, by other abortive measures than the missing antitoxin; (2) to restrict the invading host, though we cannot stop it; (3) to destroy or to neutralise the poison by the vital energies; and (4) to hasten its elimination by every possible help. The individual means to these ends may be inadequate at first, or even mistaken, but the plan is good and the policy sound. Bear with me, then, if I should delay you with details almost trivial or with suggestions less practical than those which I hope you will yourselves offer.

THE PRINCIPLES OF ACTION.

1. *Prompt and assiduous treatment.*—Nowhere is this more vital. In all pneumonia the opportunity for curative treatment is brief and occurs early; all the rest is mere work of rescue and success is a question of vitality. So rapid is the march of events that our treatment has to be watched and varied almost constantly. We have counted the days in the pathological process; much more essential still that we should count the days of treatment. Nay, during the first day it is necessary to count the hours, whilst each hour has its changing indications. Lasting supplies of any one medicine are not needed. What is then wanted is the physician's almost constant attendance to observe, to judge, and to act.

2. *Decisive and, if possible, abortive measures.*—Happily during that period a safe opportunity exists for the application of adequately active measures which if delayed could neither be tolerated nor possess the same efficacy. In the worst infections and in all devitalised subjects this early chance is the last chance. All disease has a functional stage; the local mechanisms are then working badly, but still they are working, and conceivably they may be made to work better and, if so, yet better still in an upward progression. Not so once local paralysis has set in. This use of the term "functional" is, I admit, rather free, but it is practically descriptive of the conditions. In the early congestive stage the ways are still open and things are moving still, if only they could be made to move again quickly and in the right way. To induce them to move is the work of the earliest and probably least difficult stage of treatment. To soften thickening exudations and to promote their absorption when liquefied is the urgent indication at the next stage of the disease.

3. *Revulsion*, or the abrupt check of the congestion and incipient exudation, is a possibility not to be given up and supported by some strange facts. I may remind you that surgical treatment has been tried by isolated observers in the shape of acupuncture of the pneumonic lobe of the lung with averred favourable effects, probably worked through the nervous system. On the other hand, there may be such remedies as vascular revulsants which may abruptly check the congestion and the exudation. My former experience of the remarkably rapid effect of bulky intravenous injections of attenuated solutions of silver albuminate (protargol), which has been confirmed by the subsequent experience of others, among whom may be mentioned Professor Netter of Paris, is suggestive in this direction. But we are not dealing now with any such heroic methods but with simpler ones such as may be applicable in any cases if only taken in time. We should not forget that revulsants are not necessarily violent measures; in pneumonia none such is admissible. Cutaneous counter-irritation, blistering, and suitable internal remedies, although of the nature of lighter touches in treatment, may give vaso-motor visceral effects not less decided than those witnessed in some other acute affections. The entire treatment which I have to recommend for the first few hours might in a broad sense be included under revulsion, but it belongs largely also to the following headings.

4. *Defibrination.*—As to the danger which lies in the fibrin, the fact that patients die because they have failed to reabsorb it is enough to point to the necessity of preventing its deposition. The most effectual way, that of completely stopping its supplies, is not, of course, available. This would mean either largely draining the blood away or depriving the blood of its fibrin factor supplies. An attenuation of both these impossible methods is really that which seems to afford the best promise of success. To discourage the local consolidation by diminishing the general supply of the fibrin factors is the end towards which our treatment and diet are made to converge.

5. *The removal of obstructions.*—This is the soul of our tactics. The greater part of our plan of campaign might be described as the carrying out of the principle of clearance and unblocking. The local stagnation of blood and lymph in the lobe affected, whether entirely vaso-paralytic or associated with some fine structural changes, is the first and most important of the obstructions to be dealt with. Short of the acupuncture referred to we cannot treat it locally. A less direct but manifestly active method is that by general vascular depletion and this will presently be referred to as one of our chief resources.

Derivation by the primæ viæ is another and much less expensive form of relief to the circulation. The value of reducing the vascular contents through the bowel cannot be over-estimated and is probably not despised by any clinicians as an instalment of active treatment. The way out must be widely opened and widely used, and a steady lymphatic stream outwards (from the tissues into the veins) kept up not only by the bowel but by the other emunctories, the kidneys and the skin. Diaphoresis and diuresis are scarcely second in importance to catharsis; but we hear less of their being called to the aid of the pneumonic patient. This form of treatment, if applied *à outrance*, might almost compel the reabsorption of any absorbable exudate. But without resorting to extremes we should make an energetic attempt to secure a fair instalment of the desired result.

Diet has an important influence as an aid or a hindrance. Whilst we are endeavouring to unblock the lung by reducing the general bulk and richness of the blood and emptying the lymphatics, the attempt to introduce highly nutritious supplies in constant relays is not theoretically consistent. From a practical aspect it can be shown to be mistaken, as it is liable through almost inevitable fermentative distensions to set up more vascular and lymphatic obstruction than all our measures could avail to relieve. Temporary starvation on a thin fluid diet is the only practical plan for the early stage.

Acceleration of the lymph circulation by cardiac stimulation.—"Take care of the right heart and the left heart will take care of itself" is a maxim recently urged in my lectures upon the Principles of Heart Treatment

at the Medical Graduates' College and Polyclinic, the importance of which is brought home to us in pneumonia where the right heart is put to the test. Heart treatment may be regarded as the major part of the treatment of pneumonia. The heart is not only the main factor in the resistance of the patient; it is also the chief agent in giving efficiency to our cathartics, to our diuretics, and to our diaphoretics for the work of elimination and reabsorption. Hence the importance of at once lightening its burden and nursing its energy.

AN ILLUSTRATIVE CASE.

Before entering into the details of treatment, I will place before you the brief notes of a case of recovery from double pneumonia of some severity which seems to bear out the view that there may be some use in active treatment, complete defervescence having occurred on the morning of the sixth day and lysis having previously set in on the morning of the fifth day.

The patient, aged 28 years, single, formerly a private in the Queen's Bays and now a fishmonger, was admitted on June 29th, 1904, into St. George's Hospital 26 hours after a severe rigor which seized him in the course of apparently good health. He denied syphilis or any serious addiction to drink. His previous illnesses had been hæmoptysis in 1897, when a large quantity of blood was spat up after straining to lift a weight, and he was kept in bed eight weeks with cough and expectoration, and in 1900 a severe right pneumonia with high fever for two weeks and delirium setting in on the fifth day after his admission into the Military Hospital at Aldershot and lasting five days. He had otherwise enjoyed perfect health. His body weight was 12 stones 4 pounds prior to admission (and it had fallen to 10 stones 8 pounds on July 19th, the date of his discharge). The events were as follows:—

First day of the attack, June 28th.—Rose at 6 A.M., feeling well. Sudden rigor at 8 A.M. lasting half an hour. Pain at right lateral base; vomited; went to his work but felt chilly all day with anorexia and cough. Bad night from cough and pain.

Second day, June 29th.—Got up and went to work, but could hardly stand and gave up at 9 A.M. to proceed to the hospital. Symptoms on admission: herpes of lips, no cyanosis, but much distress of breathing and frequent suppressed cough; a good deal of right basic pain apparently diaphragmatic with limitation of movement. On auscultation: altered respiration at right infrascapular, with some (doubtful) tubular respiration, a few scattered rhonchi. Heart sounds muffled but free from murmur. Pulmonary second sound accentuated. The treatment was as follows:—Stimulant: gin, four ounces daily. Diet: whey, three pints; soda-water; two lemons; no salt. Prescriptions: Calomel gr. iii. statim; hst. sennæ an hour later. ℞ Pot. iod., gr. v.; pot. cit., gr. xv.; liq. amm. acet., ʒ ii.; sp. amm. arom., ℥ xx.; sp. æther. nitrosi, ʒ ss.; aq. menth. pip., ad ʒ i. Ft. mist. Of this six doses were taken every two hours, then one dose every four hours. Hirudines vi., pectori applic.; the leeches to be applied to the painful region of the chest. Pulv. Doveri gr. x., hora somni sum. (was not required). The patient to be sponged if the temperature should rise above 104° F.

Third day, June 30th.—The night's sleep was fairly good after much relief from the leeches. Symptoms: The percussion is slightly dull above the upper border of right lobe of liver. At the angle of the left scapula some faint tubular respiration is heard. General condition very satisfactory. No change made in the treatment. Repeat senna. Diet: four pints of whey; no salt.

Fourth day, July 1st.—The patient has not slept during the night. First typical rusty sputum to-day. There is severe pain this morning at the left lateral base on respiration or cough. No friction heard but râles and some tubular breathing; also some faint tubular expiration at the angle of the left scapula. At the right base dulness and increased tactile fremitus below the spine of right scapula to axillary line. Redux crepitations and tubular breathing over the same area. Diet: four eggs in addition, the whites in the whey, the yelks in gin. Treatment: five leeches to the left lateral base. Mouth wash. Oil of jasmin for the nostrils. Oxygen inhalation continuously per nasum. Same mixture. 5 P.M., Inject. morph. acet. gr. ¼, subcut.

Fifth day, July 2nd.—Patient much better; no severe pain. Bronchitic sounds heard down left back. Right lung gives same signs as yesterday but fewer redux crepitations. Mouth better. Breath less offensive. The sputum less rusty, contains the pneumococcus with other organisms. In the course of the day the temperature fell steadily. Treatment: no change. 1.30 A.M., hst. morphin. statim; 10.30 A.M., rep. hst. morph. Diet: 1.30 A.M., peptonised milk instead of whey; Brand's essence; brandy three ounces daily; omit lemon; lime water one-fifth in the milk.

Sixth day, July 3rd.—The temperature has dropped to normal. There has been no sleep during the night. The patient is nervous and there is slight twitching of the hands. At 10 A.M. he became slightly delirious. This condition increased. Trional at 3.30 P.M. gave him a little ease but from 6.30 to 10.30 P.M. he was in a state of active and almost violent delirium. Treatment: no change. At 9.30 P.M., Morph. gr. ¼, liq. strychn. ℥ iii. sub cutem. inj. Diet: no change. Two eggs, two oranges, two apples.

Seventh day, July 4th.—Patient had a good night and is quite sensible. Some cough when rolled over in bed; the sputum is no longer rusty. At left back air entry diminished, but no more rhonchi. At both bases some tubular respiration and some redux crepitation as before. Treatment: omit mist. Diet: fish diet, soup, one egg, no salt. (N.B.—Salt and ordinary diet, with extras, were allowed on July 7th.)

Thirteenth day, July 10th.—Patient has progressed favourably, sitting up on July 8th in bed. Vocal fremitus is diminished at the right base, where crepitation can be heard, with more tubular breathing.

Fourteenth day, July 11th, and after.—There is no rise in the temperature; more dulness at the right base, which was aspirated without any result. Left lung normal. A limited pneumothorax was found next day over the lower half of the right chest. This gave rise to no marked symptoms and patient was discharged on July 19th recovered.

REPORT ON THE URINARY CHLORIDES BY MR. P. A. HAYNE, HOUSE PHYSICIAN.

June 30th (third day of illness: three days before crisis).—Specific gravity 1020. No albumin. Chlorides: abundant curdy ppt., no diminution. Diet: "no salt."

July 1st (fourth day of illness: two days before crisis).—Specific gravity 1020. No albumin. Chlorides: abundant fine granular ppt., semi-opaque. Decided diminution. "No salt."

July 2nd (fifth day of illness: one day before crisis).—Specific gravity 1020. No albumin. Chlorides: abundant fine granular ppt., same as yesterday. "No salt."

July 3rd (sixth day of illness: day of crisis).—Specific gravity 1020. No albumin. Chlorides: less abundant granular ppt.; translucent. "No salt."[2]

July 4th (seventh day of illness).—Specific gravity 1020. No albumin. Chlorides: marked diminution since yesterday. Transparent as well as translucent ppt. "No salt."

July 5th (eighth day of illness).—Specific gravity 1020. No albumin. Chlorides: more diminished than yesterday. Ppt. very transparent opacity. "No salt."

July 6th (ninth day of illness).—Specific gravity 1020. No albumin. Chlorides: increased since yesterday. Ppt. translucent, not transparent. "No salt."

July 7th (tenth day of illness).—Specimen passed at 6 P.M. after having salt for tea at 4 P.M. Specific gravity 1020. No albumin. Chlorides: same as yesterday. "Salt given."

July 8th (eleventh day of illness).—Specific gravity 1020. No albumin. Chlorides: much increased, flocculent ppt. "Salt given."

July 9th (twelfth day of illness).—Specific gravity 1020. No albumin. Chlorides: normal in amount. "Salt given."

REMARKS ON THE CASE.

Independently of the effects which seemed to result from treatment this case had features of interest of its own, such as (1) the unusual supervention of delirium on the sixth day during completed defervescence, associated with the history of a former attack of pneumonia with late delirium; and (2) the occurrence of limited pneumothorax after a negative paracentesis at the base for late symptoms of pleuritic effusion. To the treatment, so far as common observation avails, may be attributed at least a share in the following results: 1. The short duration of the attack. 2. The early appearance of redux crepitations (fourth day). 3. The presence of watery mucous expectoration on the third day and of some mucus on the fifth day (day of lysis) and the presence of typical rusty expectoration for two days only (fourth and fifth days), though slight tinging of the sputum had been observed on the second day; cough and expectoration finally ceasing on the sixth day. 4. Manifest improvement in the patient's condition after the first day's treatment. 5. Complete defervescence (after the lysis) on the fifth day although tubular respiration persisted at both bases until the fifteenth day and rather later than this at the right base, where a recrudescence of dulness occurred without any pyrexia on the thirteenth day, for which the negative aspiration was made. 6. Relatively prolonged absence of chlorides from the urine and their abundant return as soon as salt was supplied in the diet (seventh day). The chief neglected opportunity appears to have been that of better supply of sleep. Had this been obtained the delirium might perhaps have been avoided. In other respects the treatment was fairly satisfactory in its general lines and admirably carried out by my excellent house physician, Mr. P. A. Hayne.

THE PRACTICAL DETAILS IN THE APPLICATION OF THE PRINCIPLES OF TREATMENT.

First aid.—For the shock of the invasion immediate recumbency, warmth, and a small dose of ether or brandy with hot water are indispensable, and some soothing draught is most desirable, such as ammonium bromide with aromatic spirit of ammonia and from five to ten drops of solution of morphine in chloroform water to prepare the patient by rest for the active measures which cannot be delayed. A dose of calomel is to be administered at once and to be followed half an hour or an hour later with a senna draught.

Cardiac treatment is our next thought. Arrangements must be made for the immediate supply of oxygen, which is needed for continuous administration. If oxygen is worth administering in desperate states and to the dying why should it be neglected as a profitable adjunct to the active measures of the early stage? Its continuous administration would be a valuable help to the heart against the fatigue inseparable from them. It has over the continuous administration of alcohol the advantage of being harmless and of not complicating the alimentary situation. There is an apparent contradiction in the two recommendations

[2] No sleep for 36 hours. During the morning the patient was somewhat delirious; this increased during the afternoon (the patient endeavouring to get out of bed) and evening until he fell asleep at 9.30 P.M.

to diminish the number of the oxygen carriers by leeching and to supply oxygen artificially. But I need not stop to explain that both for lung and heart relief these are converging lines. In connexion with oxygen a practical point is to avoid the glass funnel which has been so generally recommended, as it is the most unsuitable of appliances. The "mask" works better in preventing diffusion of the oxygen away from the patient but it is intolerable to him. The best means is to place the end of the tube itself between the lips or immediately in front of the mouth, or preferably to use Mr. George Stoker's excellent plan of a soft indiarubber nostril-piece which is self-retaining and convenient.

Bleeding or leeching.—Pneumonia is *par excellence* the field for discussion of the merits of bleeding. But I can only allude to the fundamental question as to whether the bulk and the quality of blood which are needed in the full activity of health are in themselves, or are not, an encumbrance in the prostration of the functions by acute diseases, because this bears closely on the question as to when to bleed. Clinical observation bears out, I think, the ancient belief; but whereas our predecessors both starved the blood and drained it some of the modern teaching urges us to withdraw blood on the one hand and to promote blood making by assiduous feeding on the other. The pain often severely felt on the side of the lesion is relieved so invariably by leeching that the most timid will feel justified in prescribing the latter, particularly as the relief is usually permanent, unlike that from the application of ice or of fomentations. Under the convenient excuse of relieving the pain something more has then been done for the patient beyond the mere soothing of nerve endings. So much impressed am I with this advantage that I make leeching a routine of treatment quite apart from the question of pain. The stronger measure of bleeding from the vein may be required in some cases but it is a more serious undertaking in the sick room and viewed all round is not, perhaps, so desirable as leeching, which is less likely to raise any objection. I rather doubt whether it should be resorted to after consolidation has occurred except as a desperate remedy —a "measure of rescue" from imminent heart failure. The pneumonic patient may well spare a little blood at first; he certainly cannot spare much during his deepening prostration. In this matter, as in others, let us remember to discriminate between the "clinical days" of pneumonia. That which is good or bad on the one day may be just the reverse for the other day. For the present my own position is that abstraction of blood, preferably by leeching, is of great value and of value in proportion to the early date of its employment before the deposition of fibrin. Its function should be to cure rather than to resuscitate, and any loss which it may entail should be inflicted not upon the advanced stages of exhaustion but upon scarcely yet diminished reserves of health. Therefore do not delay making the needful preparations for the application of leeches.

Sweating, already invited by some of the previous measures, might be promoted more actively by a hot-air bath confined to the lower extremities or by De Lancey Rochester's device of a hot mustard foot-bath administered in bed; but internal medication can do what is wanted without any unnecessary fatigue to the patient, and we now come to the question of medication. Its chief aims are diaphoresis, diuresis, antifibrinosis, and absorption. These may be combined in the mixture, which is to be repeated every hour or even every half hour at first to insure rapidly the results in view. I have given antimonial wine, aconite, and green hellebore with none but good results, but simpler remedies may be good enough for our purpose. Leaving aside all so-called vascular depressants and even citrate of potash I now trust to the free use of the ammonium citrate which fulfils concurrently another good purpose. Sweet spirit of nitre may be added to the mixture and the sweating is to be encouraged by warm beverages and one or two doses of gin.

Diuresis.—This object is well served by the agents just mentioned. I doubt whether any stronger ones are needed. As a fact renal permeability is not conspicuously reduced by pneumonia. Our object is gained if plenty of fluid can be passed through the blood and excreted by the skin and by the kidneys without the complication of many drugs. I prefer at present to avoid any possible risks from the use of digitalis and the depressing effects which may attach to the nitrate and to the acetate of potassium. But I am inclined to give further trial to divided doses of calomel, less perhaps on account of its diuretic action than for the sake of its beneficial effect upon absorption.

Cardiac improvement is obtained at this stage rather by diminishing than by increasing the cardio-vascular contents, by lowering rather than by raising the peripheral vascular tension. This has its bearing upon diet and upon the choice of drugs and the use of narcotics. Alcohol is useful both as a cardiac stimulant and also perhaps as a food; and gin has an advantage over other forms of alcohol in its marked diuretic effect. I have already insisted upon the value of oxygen as affording direct support to the heart, and I may repeat that acute heart failure is not among the probable dangers of the first day. But to restore the heart's strength nothing is equal to sound sleep.

Antifibrinosis.—It is fortunate that one of the best checks to coagulation is offered by citric acid as a precipitant of calcium, which is essential to clotting. The carbonates also tend to keep the blood fluid, but they are to be avoided in pneumonia, as in rheumatic fever and enteric fever, because of the recurring gastric inflations to which they give rise and which in pneumonia are even more detrimental to the heart than to the stomach. Fluidity of the blood is also favoured by iodide of potassium, as evidenced by the purpuric eruptions of iodism and by the fact which I have observed that aneurysms after prolonged treatment by large doses of iodide of potassium have been found after death absolutely free from laminated clot.

Absorption.—Iodide of potassium is the last drug to be mentioned in my prescription for this stage, but so great is the value which I attach to it as a solvent and an absorbent of fibrinous deposits that I continue its administration throughout to the end of the attack. I have prescribed it to the extent of 60 grains a day and more, but the question of its dose has yet to be determined. This treatment is not absolutely novel, for I was interested to read that it has been used largely and strongly advocated by Altshul.[2] Indeed, it is the latest of the "specific" treatments. Altshul and his followers report excellent results from large progressive continuous doses which are run up to an enormous total, as much as 3000 grains having been administered to some of their patients in one day. The results reported are good. The temperature is lowered and the attack invariably terminates by lysis. We need not imitate the liberality of these administrations. They afford, however, a welcome support to the use which I have made of the remedy, as they show that there is often an extraordinary toleration for it in pneumonia. Perhaps the average dose may be materially increased. For the present the prescription which I use for the first day is somewhat as follows for the adult, and the same reduced for children:—

℞ Pot. iod. gr. v.[4]
Liq. ammon. cit. ʒ ii.
Sp. æth. nit. ʒ ss.
Sp. amm. arom. m. xx.
Aq. chlorof. ad ʒ ss.
Ft. mist.

One tablespoonful diluted to be taken every hour for six doses, and subsequently every three hours.

℞ Hyd. subchlor. gr. ½.
Ft. pil. parvula.

One pill to be taken every four hours.

Diet and alcohol: their share in the treatment.—I think that alcohol is indispensable from the first, in moderation, as a stimulant and as a food substitute. The patient is at first neither anxious nor fit for food. There is a double purpose in the temporary avoidance of highly nutritious supplies: (1) digestion has to be rested and the alimentary mucous membrane has to be cleared; and (2) gastro-intestinal fermentation must absolutely be avoided as one of the early obstacles to recovery and later as one of the worst dangers. The risks of comparative starvation are as nothing in comparison. As a fact water is a more urgent indication than food. The more watery we can make the diet the more harmless and suitable it will be both as food and drink. But in addition to this purpose of protection there may be a curative value in fasting if fasting should cause that excess of the available constituents of the blood apt to supply the exudation of fibrin to be claimed instead as tissue food by the entire economy. In that way diet is allotted its active share in the deobstruent plan. Milk is too nutritious and too heavy. Whey is preferable, as it gives no heavy coagulum to keep up fermentation and for the first day or two I abstain

[2] Medical Record, March 26th, 1904. Cf. Therapeutic Gazette, p. 326, 1904.

[4] I do not regard the small amount of free iodine liberated by the spiritus ætheris nitrosi otherwise than as an advantage; and I might sometimes add two or three drops of the tincture of iodine.

from fortifying it by the addition of white of egg. As soon as progression towards recovery is established food comes in as the best and only necessary medicine.

Dechloridation.—Under the heading of diet also comes the question of the supply or withdrawal of the chlorides in the food. It has been held that the disappearance of the chlorides from the urine was in part due to their being detained in the fibrin; this if correct would open a question as to the relative value of two opposite lines of diet. First, whether the solidification of the fibrin would be impaired by our diminishing the supply of salt; and, secondly, whether a plentiful supply of salt might not be the means of providing a useful constituent to the blood and restoring the urinary chlorides, and of benefiting the patient whatever the effect on the consolidation might be. For a reply to this question I have not sufficient clinical experience. In this case the practically complete withdrawal of salt from the diet did not seem to interfere with satisfactory improvement, but in other cases I have obtained results even more striking without dechloridation.

Sleep, &c.—After this active work of the first day rest is well earned, though the patient may probably feel relieved rather than fatigued. Just as the first day presents no major risks of heart failure, neither is the first night unsafe for a soothing draught of morphine. The bowels have been relieved; the ways are open. No harm is likely to accrue from the dose and the patient will probably wake with manifest signs of improvement. During the second day the same medicine may be continued. Three grains of quinine in pill or powder will be a useful addition to each dose. Four ounces of alcohol, or perhaps six, will be required but the diet cannot be much increased. The whites of two or three eggs can be added to the whey and the yelks beaten up with gin or brandy. A quarter of a pound of sugar should also be given in the whey. A sleeping draught may be required if the patient is restless. On the third day and subsequent days individual differences become prominent. Some will be on the high road to recovery; for others the struggle is deepening. In both cases, but chiefly in the latter, support is now becoming the main indication. The heart must be fed as well as stimulated. We must make sure that the food is such as will be absorbed. Raw meat juice, strong gravy, maltine, or predigested foods and eggs beaten up should be substituted for the whey, and good milk given in tea or thickened with cocoa. Oxygen must be continued and strychnine frequently injected in anxious cases. In the safe cases the latter may be included in a fresh mixture with carminatives, and iodide of potassium and quinine should also be administered.

Secondary depletion.—The worst cases may not respond to any of these efforts and a second leeching or even a venesection may be indicated. As a preliminary to the latter two single doses of digitalis (tincture and infusion) might be given at an interval of two hours and the venesection immediately preceded by a ten minim dose of a 1 in 1000 solution of adrenalin under the skin.

The further treatment of cases cannot be detailed profitably, as they all diverge more and more. Let me point, however, to the advantage of variety in the stimulant, as I recommend its continuance whilst pyrexia lasts. The "gin always" or the "brandy" may be *ad nauseam*. According to taste or to habit whisky or rum, but specially champagne, port wine, or burgundy may be substituted, at least as an occasional change. The virtues of red wines, particularly when administered hot and with plenty of sugar, are too much neglected in pneumonia which is not a dyspeptic affection. As already hinted, lemons are quite in line with our treatment; I regard them as most valuable in the early stages in the shape of hot lemonade, particularly when their outer glandular layer is also made to yield its precious contents.

VITAL STATISTICS OF THE COUNTY OF DURHAM.—The principal vital statistics obtained in the administrative county of Durham for the year 1904 have just been issued in a concise tabular form by Dr. T. Eustace Hill, the county medical officer of health. For purposes of comparison the corresponding figures for 1903 and for the ten years 1894–1903 are shown in parallel columns. The estimated population for 1904 was 801,100; the birth-rate was 35·6 per 1000; the general death-rate was 15·3 per 1000; the zymotic death-rate was 2·59 per 1000; and the infantile mortality-rate was 162 per 1000 births. Small-pox showed an increased prevalence, the mortality per 1000 of the population being five times as much in 1904 as the average for the ten years 1894–1903.

SOME CLINICAL USES OF IODIC ACID AND THE IODATES.

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A FEW years ago I directed attention to some of the surgical and medical uses of calcium iodate.[1] In the interval I have continued to use it both in hospital and in private practice and the results which have since been obtained only serve to substantiate the promise it then gave. Before going on to consider iodic acid and the other iodates it may be useful to summarise the uses to which the calcium salt has up to the present been put.

Its application in fine powder to all cicatrising surfaces—such as after the curetting of scrofulous glands, excision of dead bone, to all incised, lacerated, or contused wounds, and particularly in the case of septic and suppurating wounds—gives excellent results. To leg ulcers it may be applied in ointment spread on lint in strength of from 10 to 20 grains to the ounce of vaseline or other unoxidisable excipient. Out of a large number of cases so treated only once has there been complaint of smarting in the case of male patients, perhaps twice or thrice in the case of female patients, but in no case even where smarting was complained of was any injury done to the tissues. On the other hand, the ulcer was in every case much improved by the application and healing generally took place with unexpected rapidity. Only once has it been applied to a burn in the acute stage when its use was attended with such excessive smarting that it was promptly discontinued. It has never been tried again. Even here it produced no irritation of the tissues. It has now been used in a considerable number of major amputations and excisions of the breasts where it has been applied at the operation in a 3 per cent. gauze. At subsequent dressings irrigation with the warm saturated solution, with or without dusting of the surfaces with the powder according to discretion, and again covering with iodate gauze has been the routine practice. The results have been all that could be desired. Some of the cases were very unpromising but I shall give details of only one which may be taken as a fair example of the power of calcium iodate in preventing sepsis.

A chronic alcoholic, aged 72 years, was admitted into hospital at midnight in a state of intoxication with a compound fracture about four inches below the tuberosity of the tibia. The upper fragment projected through a large ragged wound. Under an anæsthetic the fragments were easily brought into their natural relations, but the soft parts could not be made to meet over them in consequence of evident loss of tissue. The leg was put up on a back splint and at once incased in plaster of Paris with an opening in front opposite the wound for dressing. On the next day, partly from the history given by the patient and partly from inspection of the parts, it was ascertained that there had been an extensive surface of bare and presumably dead bone before the accident and that in this condition it had existed for years. As the fragments were in excellent position—and they were rigidly maintained so throughout—it was resolved to allow a chance of union. The wound was irrigated every other day with the warm saturated solution, the fine powder being subsequently "showered" in, and for the eight succeeding weeks during which the limb was kept on the splint not a single divergence from a strictly normal temperature was observed. When the splint was removed at the end of that time it was found that there had not been the slightest attempt at union. Amputation was accordingly resolved on and was made through the knee-joint by Stephen Smith's method. The internal condyle of the femur was found to be diseased and was accordingly removed. The case, which was dressed as before described, gave no trouble except for a considerable serous oozing from the wound during the first few days and healed perfectly.

In the case of smaller amputations, such as of fingers or toes, it has been frequently observed that after a liberal use of the powder, repeated two or three times at consecutive dressings, healing takes place under a dry scab without the necessity of further protective dressing. The

[1] See THE LANCET, Dec. 29th, 1900, p. 1867.

same remark applies to incised wounds. In not a single case out of a large number of hand injuries received in all conditions of filth has ever the shadow of sepsis been seen where calcium iodate has been used.

The warm saturated solution has been largely used as a vaginal douche, and here its deodorant, antiseptic, and astringent effects have probably all, in varying degree in different cases, contributed to the satisfactory results obtained. Perhaps the best—but at the same time not quite unexpected—results have attended its use as a bladder irrigant. For this purpose the warm solution may be used up to the point of saturation. No untoward effects have been observed and a permanent cure has been obtained in a proportion of the cases after a single irrigation. The case of tuberculous bladder which was referred to in a previous paper has been kept under observation since the date of the last irrigation, August 5th, 1900. There has been no recurrence and in the interval not even a suspicious symptom. In another case where tubercle bacilli along with multitudes of colon bacilli were found in the urinary deposits, and where there was a continuous high temperature with general symptoms of some gravity, the warm iodate solution was also used several times. The bladder condition was for the time being complicated with pregnancy, but the patient—now two and a half years after—seems to be in a fair state of health, and the symptoms at least for the present in abeyance. While this case was under treatment it was incidentally observed that a solution of 1 in 1150 inhibited the movements of the colon bacillus.

It was for long in daily use as a mouth wash and gargle, for which purposes it was found eminently efficient as well as cleanly, but latterly, as will be noted, iodic acid has usurped its place in this respect. The saturated solution has also been used as an irrigant in empyema of the chest.

I have also been informed by a dentist of large experience that he has used it for all the purposes for which iodoform or its substitutes are generally used in dentistry and that it is particularly efficient when applied for pyorrhœa alveolaris for which it may be ordered as a dentifrice of the undiluted powder.

It has been found to be all but a specific—in ointment 10 grains to the ounce—for the eczema capitis and other eczemas of infants. As might be expected, the eczema may recur on disuse of the ointment but it always yields to a fresh application. In local eczemas of adults it has also been found of value in some cases, in others not, but it would be difficult to draw any clinical distinction between the cases in which it is and which it is not likely to do good, though I have thought that a specific origin counted for something in a number of the cases. In otorrhœa it is very useful as an irrigant, for which it may be used up to full saturation. It has been used for hypodermic injection into tuberculous joints, after the manner of iodoform emulsion, in only one case—a knee-joint in a boy, aged seven years, who had night starting and elevated temperature. There was bogginess on each of the patellar tendons. About half a drachm of an emulsion (three drachms of calcium iodate to the ounce of glycerine) was injected on two occasions. The temperature became normal, night starting disappeared, and there was at least temporary improvement. In another chronic knee case, probably also tuberculous, in a man, aged 51 years, pus was evacuated by incision and drainage. This was followed by the use of emulsion of the strength indicated. Healing had taken place at the end of five weeks. Injection of emulsion in similar strength was also adopted as the routine treatment in a case of hip-joint disease in a fragile boy, aged seven years—so fragile, indeed, as to preclude the advisability of radical measures—where there existed two large sinuses leading down to dead bone. Whether the treatment contributed in any way to the result may be left an open question, but the sinuses have long healed and the boy is now well and ambulant. Two drachms of emulsion were also on one occasion injected into an abscess cavity of the lung with apparent temporary amelioration of the symptoms.

Medicinally further evidence of its efficiency as a gastro-intestinal antiseptic has been obtained. In a very small proportion of cases it has been found to disagree but the symptoms have not gone beyond a slight temporary discomfort. So far it has only been used in one case of typhoid fever, but in that the results were such as to encourage further trial. The patient was a young woman, aged 20 years, in the middle of the third week of the disease. The morning temperature at the time of the first exhibition of calcium iodate was 102° F. It was ordered in half-ounce doses of the saturated solution diluted with water to be given twice daily and was quickly increased to one and a half ounces three times a day diluted as before. On the second day after its use the diarrhœa, which had been copious, ceased, the temperature began to come down, and on the fifth morning it had reached normal and never rose again. No unpleasant symptoms were observed, though the medicine was continued in the larger dose for a fortnight after a normal temperature was reached. The patient then said that there was a slight metallic taste in her mouth but made no complaint. I may say that I now order iodic acid in place of the iodate for internal use and I should also do so—and have done so—in typhoid fever if I considered any medication on antiseptic lines necessary in that disease.

From a purely economic point of view it may be mentioned that calcium-iodate is produced at two-thirds the price of iodoform.

The success that has attended the use of calcium iodate for the purposes I have noted led me at a later date to try the mother acid—iodic acid—in hopes of attaining even still better results. Generally, it may be said that the acid possesses all the properties of the salt in an enhanced degree. Iodic acid has been used on the continent in solid form or in strong solution as a caustic. It was also at one time thought of as an iodoform substitute but in undiluted powder it was found much too irritant for that. It has, so far as I am aware, never been used for any of the purposes noted below. As regards inhibitory power on the growth of micro-organisms I estimate that as at least three times that of the calcium salt. The following experiment will indicate its power in this direction. Four quantities of the same sample of urine had added to them on March 22nd iodic acid in the following proportions: (*a*) 1 in 25,000, (*b*) 1 in 9000, (*c*) 1 in 4500, and (*d*) 1 in 2500. These along with a control were exposed in unsterilised test-tubes to the atmosphere of the laboratory with the following results: (*a*) began to show signs of decomposition on April 16th, the control having begun to smell badly on the fourth day after exposure; (*b*) showed a few fungoid balls in the mucus at the bottom of the tube on May 22nd, but there was no smell: it had decomposed by June 19th; (*c*) is described as still sweet and clear on July 21st, but some fungoid growth had appeared by August 4th; while (*d*) remained perfectly sweet and clear up to Feb. 15th of the following year, when a single clump of fungoid growth was first observed in the mucus at the bottom but the supernatant urine was still perfectly sweet and clear at the end of the year on March 25th.

In addition to its power as an antiseptic it was found to possess remarkable—in my experience unique—powers as a deodorant and use has mainly been made of it in this direction. With potassium permanganate it compares more than favourably, its power being roughly estimated as three while permanganate is two for equal weights of the salts. It has also been found of service as a deodorant where permanganate quite failed, probably because the chemical action of the two substances is not identical. Iodic acid has the additional advantage of not staining the hands or the tissues, while it is, of course, a much stronger antiseptic than permanganate. Among the uses to which it has been put the following may be briefly enumerated: 1. As an irrigant in the case of a burn in an epileptic female, aged 77 years. The burn was extensive, reaching from above the knee to the ankle and round half the circumference of the limb. On admission it was found put up in a Carron-oil dressing which had not been changed for several days and was in consequence very offensive. There was also deep and extensive sloughing. Iodic acid of the strength of 1 in 500 was used for irrigation and the surface was afterwards dressed with lint wrung out of the solution. The fœtor was discharged at once and no complaint was made of smarting. 2. As an irrigant in ozæna. 3. Also for the same purpose in a patient of filthy habits who had infected an amputation wound of the thigh with the colon bacillus. 4. For placing in the recipient vessel in the case of a most offensive urine—without exception the vilest ever experienced—in the case of an old man who had long led a catheter life. 5. As an irrigant in empyema of the chest, also in strength 1 in 500. 6. Lint wrung out of 1 in 500 solution was used in the first instance as an application to clean and to deodorise two very offensive leg ulcers in an ataxic female, aged 75 years, and proving efficient and non-irritant was continued till perfect healing had taken place. 7. In same strength as a mouth

wash in a case of recurrent and inoperable epithelioma of the mouth and cheek. 8. As a vaginal douche in a case of inoperable cancer of the uterus and vagina. In all of these cases the solution of 1 in 500 proved efficient beyond expectation. As regards the last two cases no one knowing the fœtor attending such cases would probably believe without trial that the results obtained were possible. For months both were kept perfectly free from the slightest indication of fœtor. 9. During a year's experience in the local Fever Hospital iodic acid was the all but exclusive substance, in strengths up to 1 in 300, used for applications to the throat in diphtheria and scarlet fever, while it was in general use as a mouth wash in 1 in 500 and was found particularly useful for the latter purpose in cases of typhoid fever. 10. Internally I have frequently ordered a drachm of 1 in 100 freely diluted with the happiest results for gastro-intestinal sepsis or fermentation. For this purpose I consider it to be a more elegant prescription than the ordering of one or two drops of tincture of iodine in solution. No untoward symptoms have been recorded after its use. 11. It was given internally in two cases of typhoid fever. Both were of exceptional severity but it was credited with checking excessive diarrhœa in one of them after other treatment had failed. The case, however, which was complicated with multiple abscesses all over the body, eventually proved fatal. 12. The last two operations which I performed in Dr. Gray's Hospital—an amputation of an arm through the upper third of the humerus and an excision of a breast—were carried through on antiseptic lines with iodic acid for the whole technique, for disinfecting the skin, the instruments, &c., and for irrigation at subsequent dressings, calcium iodate gauze being used as before. The results were unexceptional.

The iodate of zinc has also been used. It is soluble at ordinary temperatures to slightly over 2 per cent. and contains about 61 per cent. of available iodine. I have found it useful where a stronger solution of calcium iodate than the natural insolubility of that salt admits of being prepared appeared to be indicated and it has been used in various strengths up to full saturation in the following cases: (1) for injecting chronic sinuses left after curetting tuberculous glands; (2) in the same way in disease of phalanges and metacarpal bones (three cases) after curetting; (3) for disinfecting the locus of operation after removing suppurating glands of the axilla; (4) for washing out deep abscess cavity of the palm; and (5) for irrigation in offensive otorrhœa up to three grains to the ounce. While the results were excellent in all I may say that I was particularly pleased with its action under (2) and (5).

Subiodate of bismuth has also been used. The samples prepared by me, as well as those prepared for me, showed about 48 per cent. of available iodine. It is a very fine white powder in consistency very like the carbonate of the same base. It has been used with unexpected, but perhaps not always permanent, results in lupus. Three cases in all have been treated.

The first case was that of a female, aged 28 years, who had had lupus since nine years of age. The parts affected were both cheeks, the upper lip, and both alæ nasi. The anterior nares were occluded from cicatricial contraction. There was a discrete patch of the size of half a crown under the chin. The case had been repeatedly curetted in Dr. Gray's and other hospitals—14 times in all, she said. She was admitted on Feb. 11th, 1901, and the treatment, which was at first purely tentative, consisted in the removal of all crusts and dusting the surface with either calcium iodate or bismuth subiodate. A comparative test was made between the two substances, calcium iodate being applied to the general surface of the cheeks and upper lip and the bismuth salt to the patch below the chin. It was soon observed that the latter gave the better result and the calcium salt was thenceforward entirely discarded. On March 12th, in order to accelerate the action, a general curetting was done under chloroform and the treatment with bismuth iodate was continued. Eventually the following method of treatment was evolved. All crusts and scabs were removed every other day, the surface was irrigated with a solution of iodic acid (1 in 500), and while still wet it was dusted over with the subiodate. From time to time, as seemed to be indicated, small corners of the affected area were curetted under chloretone and probably the whole surface would in time be gone over in this way. At the end of ten weeks from the date of admission she left the hospital with the whole surface healed over. The disease was well in hand some weeks before this but the patient was kept longer in hospital for the purpose of opening out and keeping dilated the anterior nares. It is understood that recurrence took place about two years afterwards, which was certainly the longest period of remission since the start of the disease.

The second case was also that of a female, aged 40 years, who had been the victim of lupus for ten years. Curetting with various subsequent applications had been made on several previous occasions and for a time I believe she had thyroid extract with apparently temporary benefit. She was admitted on May 20th, 1901. She left the hospital on June 29th. No general curetting was done in this case but the piecemeal curetting under chloretone was carried out as before. She left us to undergo the Finsen treatment at the London Hospital. On her return after five months' treatment she was seen by me, but beyond the fact that the skin was whiter, as would naturally be expected, there was little advance on the condition in which she left us.

The third case was that of a boy, aged 15 years, who showed a spot of about the size of a crownpiece on one cheek. When he left the hospital at the end of six weeks it was entirely healed. It is not known whether there has been any return.

In a very chronic skin affection of the face in a female, aged 35 years, which was probably of the nature of lupus erythematosus and which had resisted various applications, bismuth subiodate ointment, 20 grains to the ounce, was also found to have a very beneficial effect.

The subiodate has also been used as a dusting powder in a fairly large number of cases after curretting scrofulous glands. In the less extensive cases healing under a dry scab was found to be the rule. The same result, though I think less frequently, has also been noted where calcium iodate was applied. After a fairly extended trial in such cases I am inclined to prefer the bismuth salt, though results are certainly good with either.

No irritant or other unpleasant effects have at any time been observed after its use.

Mercuric iodate has been used on the continent but so far as I know exclusively for the hypodermic medication of syphilis. It contains about 46 per cent. of available iodine. This salt is likely to prove a general antiseptic of equal efficiency with the perchloride or iodide. With common salt it is soluble up to 2 per cent. or more. This would facilitate its use as a general antiseptic as it would make a supply easily portable in concentrated solution. It has the advantage over the perchloride of containing weight for weight something less than half as much mercury and of striking as an antiseptic with both ions of the salt. Comparative tests also show that it deposits mercury less readily on steel or metal instruments than the perchloride, its power being exerted rather in the direction of oxidation of the steel than of deposit of mercury. Further, what deposit does take place is readily wiped off. The following tests of its restraining power were made. 0·020 gramme of the salt was placed in 100 cubic centimetres (1 in 5000) of unsterilised, undiluted, ascitic fluid in an unsterilised flask. It readily dissolved on shaking. Along with a control it was then freely exposed to the air. The former had decomposed by the end of a week, while the fluid to which the iodate had been added continued sweet and limpid up to the end of the fifth week. With 0·030 gramme in 300 cubic centimetres (1 in 10,000) in like manner it did not begin to decompose till the middle of the fourth week. Iodic acid in the proportion of 1 in 1000 gave a result similar to the stronger solution, from which it may be inferred that mercuric iodate shows roughly five times the restraining power of the mother acid.

Mercuric iodate has been put to the following clinical uses. A man, aged 28 years, was admitted into hospital with a pronounced sycosis over all the hairy parts of his face but the right cheek was very much worse than the left. Before admission he had been treated with all sorts of applications, calcium iodate in ointment among the number. His teeth, which were carious to a degree, had all been extracted without result. On admission mercuric iodate in 20 grains to the ounce of chrisma was ordered for application to the right cheek which, as stated, was by far the worse, and unguentum vaselinum plumbicum to the left, the beard being kept closely shaved. By the end of a month the difference in the effect of the two applications had become so marked that the patient begged to be allowed to apply the mercury iodate to both cheeks which was accordingly done with complete cure in ten weeks from the start of the treatment. There has been no recurrence.

In eight consecutive cases of tinea barbæ, some of them very bad, an ointment of the same strength was ordered and has given most gratifying results. Several of them yielded after two or three applications of the ointment. All of them vanished with what for the disease in question would be considered quite surprising rapidity. From its solubility in presence of sodium chloride one would infer considerable penetrating power and to this in part the results obtained are probably due.

On the whole it may be said that iodic acid and the iodates come quite up to the expectation formed of them on theoretical grounds and actual trial shows that they may be made of extensive clinical use.

Elgin.

EXPERIENCES WITH IODOFORM BONE PLUGGING.[1]

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THE material which is used for bone plugging (*Iodoformknochenplombe* as it is called) consists of a mixture of 60 parts of the finest pulverised iodoform and 40 parts each of spermaceti and oil of sesame—a compound which at the ordinary temperature of a room forms a stiff yellow mass. At 50° C. (112° F.) the substance becomes fluid, and on allowing it to stand and cool the oily constituents separate above whilst the heavier iodoform sinks to the bottom. In order to obtain a homogeneous emulsion, the substance, after being melted by warming, must subsequently be well shaken up and then it is ready for use. Hence, for this object, it is necessary that the vessel containing the "plugging" be not quite filled, as then shaking up the contents would be practically impossible. Wide cylindrical glass tubes, in other words large test tubes, the orifices of which are closed with glass or rubber stoppers, proved to be best adapted for this purpose. Filled to about two-thirds they can be kept in stock any length of time in a convenient form.

When Professor Moorhof commenced his studies and researches on bone cavities five years ago,[2] an iodoform paste of the consistency of putty was used, but soon the conclusion was reached that to achieve success a hermetical and perfect filling of the cavity was essential, and this desideratum could only be attained by pouring in a fluid substance which solidifies *in situ*. The solid mass must be in contact with, and adhere to, every portion of the walls, penetrating every fissure and interstice, filling the cavity completely. Hence it is a *sine quâ non* that the cavity should be dry. Blood or fluid used for syringing would prevent the intimate apposition of the "plugging" with the walls. *Mutatis mutandis*, therefore, the rules for stopping teeth apply here, only the shape of the cavity is of no consequence. For drying the bone cavities hot air is employed and applied with the drying instrument of proved value which Dr. Silbermack[3] has described.

As it is obvious that every surgeon has not electrical power at his disposal, a very simple contrivance has been devised by means of which sterile, cold dry air can be blown into the cavity. Ordinary air is driven by means of a double rubber bag or bellows—in the latter case manipulated by the foot—through formalin solution and then through calcium chloride. After syringing out the cavity with a 1 per cent. formalin solution the drying should be continued until the wet glistening walls appear dull, a proof of their freedom from moisture. Chisels of various form and size, bone forceps, and sharp spoons are employed for the removal of the bony walls; if electrical power can be commanded rotation saws and drills, such as Dr. Silbermack has specified, are recommended.

It is an absolute *sine quâ non* that the walls of the cavity to be plugged should contain no diseased tissue and should be perfectly aseptic. Whereas the last stated postulate is never attainable with certainty through antiseptic measures and only a relative asepticity of the wound can be anticipated from any precautions adopted, the injunction is given to plug only such cavities as have had their walls freshly excavated under antiseptic precautions immediately before the filling or the plugging.

The plugging material which is poured in—it is recommended to pour slowly—*sets in situ* in a few minutes; the superficial soft parts can then be united after a previous complete arrest of all bleeding by ligation. No especial drainage is required, for well-plugged and filled cavities obviously neither bleed nor discharge. Existing fistulous tracts in the covering soft parts amply suffice for the escape of the insignificant amount of lymph which the soft parts secrete; if no sinuses are present it is sufficient if the sutures are not inserted close together; the scanty secretion leaks away freely through the interspaces. If one cannot be persuaded to dispense with drainage no tubes at least should be used; a narrow thin strip of oiled silk folded fanwise may be inserted between the lips of the wound. The protective dressing should not be regarded as a pressure pad; circulatory disturbances ought to be avoided.

The secretion of the wound is invariably of a "lymphoid" character and corresponds to the number and extent of divided lymphatic vessels. In a case of sequestrectomy of the tibia in which the periosteal skin-flap had grown adherent to the floor of the matrix by primary intention a form of lymphoid tumour appeared in the third week. The soft parts over the site of the plugged cavity were raised as a fluctuating swelling. The painlessness and the lack of local inflammatory symptoms and of any rise of temperature suggested the above diagnosis. A small incision was made and serum escaped. The gradual elimination of the plugging material, associated with large defects of the skin, is also accompanied by serous, never by purulent secretion, assuming naturally that the after-treatment is aseptic.

The iodoform bone plugging or filling substance, which name many consider denotes it more correctly, has only a provisional sojourn in the wound cavity; it may be either pressed up and expelled by the new connective formation, which brings about the final obliteration of the cavity as the latter grows into the mass; or it may be absorbed and consumed if no channel of escape exists, owing to a primary healing of the intervening superficial soft parts. In the latter event iodine can be demonstrated in the urine during the course of the healing of the wound. Hence it follows that the absorption of the filling substance by the granulations naturally takes place extremely slowly and constitutes the reason why there is no danger of intoxication, for such an event can only ensue through the sudden absorption of considerable quantities by the organism; the large size and extent of the wound cavity are therefore no contra-indication to plugging or filling. Iodoform bone plugging thus protects the granulations from septic disintegration, which must necessarily occur with the persistence of the cavity and be maintained as the suppuration. The "locum-tenens" preserves the entire granulation; nothing thereof is lost and organic restoration is accomplished more speedily and completely. Defects in the bone disappear and the normal shape and size of the bone are restored in a given time. Concerning the question as to in what way—viewed from a histological standpoint—the plugged cavity becomes filled up with bone tissue: first, the close examination of the skiagrams is able to throw some light; and secondly, the circumstance that the filling substance is gradually absorbed. The latter event can only occur through the action of granulations; consequently granulations must first sprout from the walls of the cavity. The production and gradual growth of bone tissue are effected by a primary formation of new connective tissue. Subsequently definitive osteoid tissue is formed from this by the deposition of lime salts. Hence, in a skiagram the immediate neighbourhood of the disappearing plugging material appears lighter in colour, resembling a halo. This lighter zone grows gradually darker, the transformation advancing with the new bone formation, so that in the course of time the bone shadow extends uniformly throughout the area. The restoration of the bone is then accomplished. It has been derived from granulation tissue by the secondary deposit of lime in an originally connective-tissue base, simulating therefore the phases in the formation of callus. The question has, however, no practical importance; its only interest lies in the fact that a new formation of bone tissue generally ensues after the introduction of the iodoform filling substance and that this fact

[1] Deutsche Zeitschrift für Chirurgie, Band lxvi., S. 589, 1904.
[2] S. Hackmann: Wiener Klinische Wochenschrift, 1901, p. 537.
[3] Deutsche Zeitschrift für Chirurgie, Band lxvi., S. 589.

has been clearly established and can at any time be checked by the use of the Roentgen rays. In this connexion Dr. Silbermack has made extensive investigations with animals since the beginning of 1903, the result of which he will duly publish.

By means of the Roentgen rays the decrease of the plugging material can always be verified; this proceeds hand in hand with the organic invasion of the cavity and is manifest in the skiagrams by its lighter shade. The length of time required for the complete reorganisation of a bony defect is variable and depends on the thickness of the walls and the cubical extent of the cavity. For example, no trace of the plugging material which was used to fill a necrosis cavity in a tibia, approximately of the size of a hen's egg, was discernible in a skiagram after the lapse of a year. The bone had regained its normal shape. The patient was discharged fit for work six weeks after the operation with a completely healed wound in the soft parts.

Should defects remain in the superficial soft parts after the operation either at the site of an old cicatrix which has contracted or in the situation of a former sinus—in short, if the closure of the wound is not perfect—it is found that a portion of the filling substance is extruded by the granulations and cast off in the shape of small fragments. To all intents and purposes, however, the outcome is the same whether the whole is absorbed or is partly absorbed and partly eliminated: the material performs the function of a "locum-tenens," preventing suppuration and loss of the granulations; it persists until the organic restoration of the cavity is accomplished, whereby healing proceeds more simply and pleasantly for the patient and decidedly quicker.

Ill-effects of the operation, such as intolerance of the plugging and a subsequent necessity for its removal, Professor Moorhof has never witnessed and his experience extends over some 220 cases. Similarly, he has never seen symptoms of iodism or the so-called "cures with sinus formation," which are really no cures at all but are only "whited sepulchres," in the depths of which the process of disease smoulders and after a longer or shorter interval awakes afresh. During the first day or two after the operation an increased frequency of pulse and a slight rise of temperature are sometimes observed which as a rule completely subside on the third day.

At the commencement of his studies Professor Moorhof employed iodoform plugging solely for the filling of cavities in bone; subsequently, however, he extended its application also to cavities the walls of which were not exclusively constituted of bony substance but were bounded, after the removal of smaller bones, partly by soft parts, partly by bone, cartilage, &c., as, for example, the cavity resulting from extirpation of the calcaneum, after resection of the wrist, &c.—invariably with the same gratifying result. If one stops to consider that the iodoform bone plugging is only enlisted to serve as a temporary stop-gap and solely for the obliteration of the dead space, then the justification for the procedure will be appreciated and understood. The indications for the use of the plugging are therefore of tolerably wide latitude and their number is by no means exhausted.

The principal class for plugging comprises the common osteomyelitic affections and tuberculous disease of the articulations and bones. The acute osteomyelitis occurring in young individuals and ushered in with severe symptoms which most commonly begins at the epiphyseal end of the diaphysis and pursues its course with violent local, septic, and general symptoms is obviously not suitable for the operation since asepsis is unattainable. Here one rests content with free incision of the soft parts, exposure of the diseased medullary cavity, with subsequent removal of the pus-infiltrated marrow, syringing with antiseptics, and the introduction of iodoform emulsion with free drainage. It is only the chronic cases of circumscribed osteomyelitis which are adapted for plugging, as, for example, the strictly limited osteomyelitis granulosa, which in certain circumstances gives rise to an encapsuled abscess in the bone—a condition but rarely found with us. Another chronic condition where plugging is indicated is when a cavity is formed as the result of acute necrosis.

The operation for necrosis is conducted in the following manner. The affected limb—as a matter of fact, most frequently the lower extremity—is first maintained in an elevated position for some minutes, when an Esmarch's rubber band is applied on the proximal side. The preliminary elevation should deplete the extremity as far as possible of blood. If this precaution is neglected and the band is applied without previous elevation of the limb drops of venous blood exude for a considerable time from the Haversian canals of the cavity after the excavation has been prepared—a troublesome circumstance which delays the introduction of the plugging. Limbs well depleted before applying the constricting band scarcely ever manifest these undesirable "*stillicidium e parietibus.*" But there are cases in which the application of the tourniquet is impracticable; for instance, foci of disease in the trochanter, the neck of the humerus, the ilium, or the thoracic skeleton. The arrest of bleeding is then very tedious and often requires great patience. Peroxide of hydrogen (from 3 to 5 per cent.) and pressure tampons are employed in these cases; stronger solutions of peroxide cauterise and do not work better or quicker. Adrenalin may also be tried. The focus of disease in the bone must be exposed to the greatest possible extent in order that the operation may be conducted with precision and ease.

In the leg, particularly for the tibia, almost exclusively curved incisions are made, which define a flap with the base directed to the inner or outer side. This long periosteal skin flap is detached and raised directly from the bone, including the whole width of the anterior surface, in such a manner as to expose its entire aspect. The openings of the sinuses are for the present not interfered with and the corresponding defects in the skin are raised with the flaps; here the knife may assist the elevator. The cloacal canals in the periosteal bone are disregarded but perhaps may be used for probing. Exposure of the cavity in the bone is effected independently of them by the removal of a correspondingly large segment of the anterior wall. This section of the bone is readily accomplished with a rotatory electric saw; more slowly with chisels, especially if eburnation is present. When the disease is sufficiently exposed any sequestra present are removed and the whole of the granulations and purulent substance in the cavity are carefully scraped away with sharp spoons until nothing more meets the eye than smooth hard bone. Care should be taken that concealed recesses in the walls of the cavity are not overlooked. Finally, a hollow chisel as a gouge was often employed; better still, and more effective, is the use of a stout olive-shaped burr, rotated electrically.

In cases of necrosis of the femur the exposure of the bone is effected by means of a large skin-muscle-periosteal flap which is cut from the outer side of the thigh with its base upwards and its breadth corresponding to half the circumference. The lower rounded margin of this extensive flap must be carefully planned with respect to the limits of the suprapatellar bursa. The rectus femoris is partially, and the vastus externus is completely, divided, the biceps remaining intact; the incision courses along the anterior border of the latter muscle. This broad and necessarily long, bulky flap is elevated together with the periosteum from the bone which is laid bare throughout its greater extent. The cloacal aperture, as is well known, is most commonly located on the posterior aspect of the femur. No attention is paid to it at this stage but a large window is sawn or chiselled out of the cortex of the external surface of the bone. Free access is now afforded to the cavity, which is thoroughly cleaned out, and new walls are fashioned. When the disease approaches the epiphysis closely it often necessitates prolonged work with burrs and sharp spoons inside the condylar regions. The cleansing of large cavities frequently occupies half an hour, sometimes longer. It demands patience and perseverance and the operation should be performed quietly and carefully. When this task has been conscientiously performed, and the cavity has been well syringed out and dried, the plugging or filling may now be proceeded with. The patient lies in the horizontal position, the wide aperture of the cavity being situated in the external wall of the cortex. The cavity itself extends upwards to a varying height towards the healthy marrow and descends on the other side towards the condylar region.

As it is essential to obtain an air-tight filling with the plugging material each compartment of the cavity must in turn be so disposed that the fluid mass can flow in as the result of gravity. The patient is accordingly first tilted well over to the side and the affected limb allowed to hang downwards from the table. The lower recess is now situated undermost and the material can be readily poured in, completely filling the whole lower segment. It is now necessary to wait for some minutes with the patient held in this awkward posture until the filling substance is firmly set.

The position of the leg is now reversed and the limb is elevated, so that what was the upper recess is now the lower; this is then filled. After a repetition of the delay to allow this material to set the filling of the cavity is completed with the limb on its side in the horizontal position. The everted, bulky, skin-muscle-periosteal flap is sutured in its original position again and heals readily by primary intention. Before suturing the flap in position all existing sinus tracts are thoroughly curetted and then left to serve for drainage. The extremity is next freely surrounded with dressings and the constricting rubber band which has remained applied until this stage is removed. Secondary hæmorrhage has never been met with. The dressing is left intact for at least a week and is usually taken down on the tenth day, when the sutures in the soft parts are removed. Subsequent dressings are also changed at weekly intervals. *Mutatis mutandis*, the same method of operation is applicable to tuberculous osteomyelitis, including the cases of affected phalanges. These are often completely extirpated, the periosteum alone being preserved and the resulting cavity plugged.

A special section is required for that disease which is of such frequent occurrence among the affections of joints—namely, tuberculous arthritis—with or without associated caries. Professor Moorhof maintains the view that tuberculosis of a joint should be dealt with by operation as soon as the diagnosis is clearly established, irrespective of the age of the patient. The so-called conservative treatment with retentive apparatus, venous congestion, injections into the joint, &c., is so much loss of time and ought only to be appealed to if the patients or their relatives refuse operative interference. Local tuberculous disease is well recognised to be capable of causing general infection. Why, then, leave in the body a source of an ever-possible extension or at least of deleterious influence on the organism? Spontaneous cure—that is, a cure effected without operative interference—is a very tedious business and often beyond the means of the poorer classes. After years of treatment joints of this kind ostensibly heal, frequently with deformities and contractures, and tolerably often with a legacy of sinuses. Indeed, in several cases of children with apparently healed tuberculous knee-joints it has been necessary to operate after they had undergone many years of treatment—the whole muscular system of the limb atrophied, the knee bent and contracted, and the joint partially dislocated, somewhat abducted and externally rotated. Resection had to be performed in these cases to straighten the otherwise useless extremity and encapsulated caseous deposits were found, sometimes in the condyles of the femur, sometimes in the head of the tibia and in the patella; and furthermore, tuberculous remnants of the capsule in the midst of the cicatrised and obliterated suprapatellar bursa. Is one, therefore, correct in speaking of healed tuberculosis of the knee-joint in such cases?—and such conditions are not unseldom found; yet these cases are numbered among the apparently successful cures, often merely because no sinuses exist. Is not any accidental injury capable of rupturing the encapsuled infectious deposit and occasioning a general infection of the body, or at least a local relapse? Every tuberculosis deposit in the organism is potentially evil; its removal is accordingly imperative, and should be effected with the same conscientious thoroughness that is displayed in the extirpation of a malignant growth. All morbid tissue must be eliminated and no vestige of it should be left behind in the field of operation to which the eye and hand can obtain access and exterminate.

But the affected limb must be considered also with a view to its future utility and in children, therefore, the epiphyseal cartilage should be preserved in order that the integrity of growth should remain unimpaired. Resection of a joint should only be undertaken if all these prescribed conditions are conscientiously borne in mind and respected. The greatest pains should be bestowed on the thorough extirpation of tuberculous deposits which are invariably present in the joint capsule, the ligaments, and their surroundings. It does not suffice to remove the soft fungoid granulations by simple curetting; as much as possible of the whole capsule must be extirpated in continuity by means of scissors and scalpel and no remnants left—just as one has thoroughly to remove tuberculous tendon sheaths and synovial pouches. Iodoform certainly possesses anti-tuberculous properties, as Professor Moorhof maintained 24 years ago; but a knowledge of this fact should not beget omissions in operating and the surgeon should rely on his own work.

The foregoing represents Professor Moorhof's view upon the true conservative treatment, for this alone in advanced cases is capable of preserving the patient from the subsequent necessity of a mutilative operation, the loss of a limb, general infection of the organism, and marasmus.

OPERATIONS RECOMMENDED.

For the surgical removal of tuberculous disease in a joint the most important factor is the freest possible exposure of the field of operation. Hence those methods of operation or lines of incision are the best which accord most completely with this postulate. One should never work in the dark; all diseased tissue must be thoroughly extirpated to obtain a satisfactory result.

Wrist-joint.—The hand, having been first disinfected and rendered anæmic with bandage and tourniquet, rests secured with its palmar surface on a firm support. A large dorsal skin flap is then marked out with the base directed towards the wrist; the free border of the flap, which is cut with a somewhat convex margin, embraces the whole width of the dorsum and extends as far as the bases of the metacarpals. This large flap with parallel margins is dissected up from the subjacent tendon sheaths and turned back on the forearm, double ligatures being applied to the superficial veins as they are divided. The individual tendon sheaths are next laid open and the tendons are exposed. These should be separated one after another in order to render the deeper-seated parts accessible. The walls of the posterior tendon sheaths, which have usually undergone tuberculous degeneration, are systematically extirpated by means of scissors and rat-toothed forceps and the dorsal surfaces of the carpal bones laid bare. These are separately seized with a stout bone hook and cut out with a pair of curved sharp scissors, working the points of the latter into the interstices. In this way all the bones of the carpus are successively removed with the exception of the pisiform and os magnum, the former of which is always, and the latter if possible, preserved. The whole of the tendons remain untouched. If one or the other of the extensor tendons should be injured it must be repaired by subsequent tendon suturing. After the removal of six or seven of the carpal bones access is obtained to the palmar segment of the capsule of the joint, which when found to be affected with tubercle is thoroughly extirpated. If the bases of the metacarpals prove to be carious the diseased ends are resected; if a tuberculous deposit is discovered in the epiphysis of the radius it is cut out from the surrounding healthy bone. When the part has been washed clean with formalin solution and the cavity in the soft parts has been dried the hand is approximated to the forearm, placed in slight dorsal flexion, and the somewhat diminished gap is filled with plugging material. This is poured in between the temporarily separated tendons and the skin flap is sutured in position. Pre-existing sinus openings serve after careful curetting for the escape of the scanty secretion of the wound. Thin, bluish, undermined skin is best removed if feasible. In the absence of sinuses a thin strip of oiled silk may be inserted quite lightly on one or both sides of the flap. Starch bandages, reinforced with narrow strips of thin veneered wood, secure the immobilisation of the hand in slight dorsal flexion. The first dressing usually is done from ten to 14 days afterwards. Preservation and retention of individual carpal bones are not recommended when the disease is at all extensive. If this is done very often foci of disease are left behind in the interstices of the little joints, which, as we know, intercommunicate, and hence the occurrence of relapses and the so-called "healing with sinus formation."

The results of total resection of the wrist-joint, performed according to the above-described technique, are excellent. Although somewhat shortened a moveable and comparatively good useful hand remains. Care should be taken that the posterior annular ligament is preserved as it secures the extensor movements of the fingers. By this method I have succeeded in retaining useful hands, even when the bases of the metacarpals were affected by caries and the tuberculous process already established between the palmar tendons. These are tedious operations truly but are rewarded by preservation of the function of the fingers.

Elbow-joint.—In resection of the elbow-joint on account of tuberculous disease the method of Victor von Bruno is used with provisional sawing through and eversion of the olecranon in the flap. This method alone affords satisfactory access to the interior of the articulation. A transverse

incision is made across the back of the arm in the neighbourhood of the radio-humeral joint until the inner border of the olecranon is reached; perpendicular to this a small incision is made along the olecranon, which is then divided by the saw and the detached portion raised in the flap without severing its connexion with the triceps tendon; a slice of bone is sawn off the ulna and the head of the radius. The ulna nerve is isolated without opening its sheath. The condyles of the humerus are exposed and cleansed, preserving as much as possible of the seats of origin of the common tendons. The articular part of the humerus is sawn off, usually in an arched form in order to include the deeper fossæ, thus making the section concave when looked at from the front. Next, careful extirpation of the capsule is pursued and if a rupture has occurred the tuberculous tissue must be followed into the upper arm or the forearm. Care must be taken to remove the granulation tissue which usually surrounds the neck of the radius. Finally, any further foci of disease are removed which may be present in the ulna or humerus and then comes the filling of the resulting cavities in the bones with the plugging material, after they have been dried as completely as possible. As soon as the filling substance has set a small "fan" of oiled silk is spread over each deposit as a protection, which is covered with dry gauze and held securely applied by the assistant. The upper cartilaginous portion of the olecranon, which in most cases is found to be carious, is then sawn off. Next, Esmarch's bandage is relaxed, the bleeding arrested by ligation, the pieces of oiled silk removed, the temporarily dislocated olecranon wired, and the wound closed by sutures, a short drain being inserted on the inner side. The dressing is applied, with a fixation of the elbow almost at right angles, by starch bandages reinforced with strips of wood. The dressing is changed after 12 or 14 days, sutures and drain being removed. Passive movements are then begun. The bone suture has never caused me any anxiety; the silver wire becomes incorporated quietly and remains visible in skiagrams. As the aim is to obtain a new joint at the elbow one need not be too exact in the amount of bone removed and immobilisation of the resected joint must not be protracted too long. Only the first dressing at the operation fixes the elbow, the second and following should merely serve to cover and to protect the wound, and ought not to interfere with movements. In consequence of the difficulties attending the filling of the cavity, resulting from resection of this articulation, Professor Moorhof contented himself with merely rubbing boiled iodoform power over its walls.

Shoulder-joint.—Since in tuberculous disease of the shoulder-joint the thorough extirpation of the diseased capsule and possibly affected bursæ in connexion with it, is of prime importance, the customary long anterior incision is scarcely to be recommended; decidedly preferable is the raising of a large deltoid flap. After displacing the long tendon of the biceps, the head of the bone is sawn off and the cavity resulting from the extirpation of the capsule and removal of the head is filled up with plugging material, while the patient is turned on to his side. A short drain is inserted and the everted flap is carefully sutured in position.

Ankle-joint.—The method of operation described in the following text, and which is regarded as typical, has given complete satisfaction in 15 cases; it affords the widest accessibility to the foci of disease which it is possible to obtain and transforms, with a little practice, the otherwise difficult operation into a comparatively easy and safe one. This method is employed in tuberculous affections of the ankle-joint and, with some modifications concerning the lines of incision, also in caries of the tarsal bones situated in front of the medio-tarsal joint. In localised tubercle of the ankle-joint the skin incision commences immediately under one of the malleoli at its posterior border, then courses forward along the margin of the foot in a longitudinal direction until the level of the mid-tarsal joint is reached. It now bends in a wide arch to meet the opposite border of the foot and is conducted backwards along this until it reaches a point behind the other malleolus; at the inner and outer malleolus the incision is made above the course of the posterior tibial artery and the peroneal tendons respectively. The broad and convex flap thus marked out is raised from the extensor tendons for a short distance and the sheaths of the latter are opened. The whole of the exposed tendons from the tibialis anticus to the extensor of the little toe are next consecutively raised from their sheaths; a long silk thread is inserted on the central and peripheral sides of this; the tendon is then divided in the middle. In the interval which separates the extensor hallucis from the neighbouring extensor tendons the dorsal artery of the foot and its venæ comites are isolated, double ligatures are applied, and the vessels are divided; the severed veins in the superficial fascia have previously been secured and ligatured. The entire soft parts of the dorsum are now dissected up along the astragalus and thrown back centrally in the form of a flap. During this step the anterior wall of the capsule of the ankle-joint is usually severed, as the dissection proceeds backwards, the joint being opened. The lateral ligaments are then divided, internally the deltoid ligament, externally the three bands which extend from the outer malleolus to the astragalus and the os calcis; the foot in consequence hangs quite loosely, the whole astragalus facing the sitting operator. The opening of the astragalo-navicular joint comes next and the astragalus is excised by a few snips of the scissors. Extirpation of the posterior wall of the capsule is readily effected after the removal of the astragalus but care must be taken to avoid severing the tibialis posticus tendon, likewise the tendons of the peronei should not be injured. Excision of the tuberculous tissue in the sinus tarsi completes the operation. After the cavity has been syringed out and dried the foot is approximated to the empty socket formed by the lower ends of the tibia and the fibula and the intervening gap is filled up with plugging material; the ends of the tendons are afterwards re-united by using the silk check-threads. The skin is drawn together by sutures; a short drain is introduced if no sinus openings exist, the dressing being applied and retained with starch bandages in which strips of wood are incorporated. In order to prevent the escape of the fluid plugging material through the lateral angles of the wound it is advisable to close them beforehand with a few sutures. Accordingly stitches are first inserted in the submalleolar regions and then, after turning the flap back and temporarily separating the sutured tendons, the material is poured into the cavity, allowed to set, and the closure of the wound is subsequently effected.

The astragalus is removed in all circumstances, otherwise thorough extirpation of the capsule would be impracticable: a *sine quâ non* for success. In one case, for example, after the completion of this step it was found that the os calcis was also diseased. It was necessary therefore to proceed with the excavation of the calcaneum from above until only a thin shell of the cortex remained. Primary healing and gradual regeneration of the calcaneum ensued, despite the presence of the plugging substance. In another case, a carious focus was found in the lower epiphysis of the tibia which was extirpated and plugged. In all the 15 cases operated upon, up to the present, healing has occurred with useful extremities and, moreover, with the formation of a new joint, hence with moveable feet. The shortening amounted to some two centimetres. Concerning the treatment of caries of the tarsal bones situated in front of the line of the mid-tarsal joint the method employed is the same with the only modification that the base of the flap is displaced further forward and its free border extends as far as the posterior third of the metatarsal bones.

Knee-joint.—In the operation of resection of the knee-joint so frequently undertaken the transverse incision across the patella and section of the latter devised by von Volkmann are employed. A short incision is first made which penetrates to the patella and corresponds to its transverse median diameter; this is then prolonged on both sides in a wide arch to the upper contour of the condyles of the femur. The patella is divided by the saw and both halves are everted in the flaps after division of the capsule and lateral ligaments. The upper half of the bone is now retracted by means of a sharp bone hook and the entire suprapatellar bursa is thereupon dissected away entire from the quadriceps tendon and inner surface of the vasti muscles with the aid of rat-toothed forceps and scissors. This extirpation of the bursa entire insures the removal of all tuberculous tissue, so essential for the success of the operation. No vestige of it should be left behind—only tendons and muscular fibres ought to be visible. If a rupture of the bursa has already taken place in its upper part and the tuberculous process has extended to the intermuscular tissue, the original incision must be prolonged and the infiltrated parts dissected away with equal thoroughness from the healthy surroundings. Rupture of a tuberculous abscess into the popliteal space and its extension under the muscles of the calf may prove a very disagreeable complication, yet with patience and

circumspection even this difficulty may be overcome. Accompanying sinuses may be excised. Attention is next directed to the lower segment of the patella; this is drawn downwards and the lower and anterior portion of the capsule is dissected away until healthy tissue is reached. The joint is now bent and the crucial ligaments are divided. The division of the latter is effected by directing the knife towards the inner condylar notch in order to avoid wounding the popliteal vessels inadvertently. The joint now gapes and an excellent view can be obtained of the diseased posterior wall of the capsule and the articular cartilages of the bones which usually exhibit areas of erosion.

Professor Moorhof then proceeds according to the following rule, which is applied in all cases to children—to adults if the bones do not appear much altered—viz., to perform the operation with a stout knife and to remove therewith the cartilage piecemeal from the end of the tibia and the femur. If one or more tuberculous deposits are found in the femur or head of the tibia, as is so frequently the case, they must be cut out of the healthy bone—a mere curetting with spoons does not suffice—and then filled with plugging material. In adults with extensive destruction of the bones concavo-convex slices are sawn off from the ends of both components of the joint, as Helferich recommends, but with children the saw is never used, since the integrity of the epiphyseal cartilage is of vital necessity for unstunted growth. The posterior wall next receives attention and is extirpated as far as possible entire; here, again, the dissection should be persevered with until healthy tissue appears in order to insure the removal of all disease. This excision of the posterior capsular wall is very circumspectly carried out with scissors and rat-toothed forceps and requires a practised hand in view of the fact that the popliteal vessels, particularly the artery, lie immediately behind the diseased capsular wall. Attention is also directed to the niches behind the condyles and the tent-like diverticula of the capsule in this situation, which must be systematically extirpated, as they invariably conceal masses of tuberculous tissue. In adults the saw is employed and it is advisable to remove only thin sections of bone with a sharp fret saw, concave on the tibia, convex to the end of the femur, according to Helferich's method. There is no advantage in sawing off thick slices of bone; it is only detrimental to the patient by producing greater shortening of the limb and by retarding or completely arresting the bony growth.

After a final inspection of the whole field of operation the wound is syringed out with formalin solution and deposits of plugging material are introduced and protected with oiled silk, the tourniquet is released and the bleeding is arrested by ligation. The halves of the patella, having been denuded of their cartilaginous surfaces by the saw, are brought into apposition by a catgut suture which unites the para-capsular soft parts; the wound is drained through the angles. Before the insertion of this suture the plugging material is poured into the gap between the tibia and the femur. The cavity resulting from the extirpation of the supra-patellar bursa is rubbed over with some iodoform powder and the drains are inserted into it. Sutures, or Michel's clamps, complete the operation. The preservation of the dorsal halves of the patella primarily fulfils a cosmetic purpose, in that it prevents the otherwise characteristic indrawing; but it also serves as a buttress of bone which lies perpendicular to the resected joint surface, and acts to a limited degree as a check against a later genu recurvatum and secondary contraction. The patella should only be completely excised if it is quite carious.

Formerly silver wire was used to unite the segments of the patella; then a thread of catgut was wound around them. Now sutures are passed through the thin prepatellar layers—viz., the aponeurotic expansion of the quadriceps tendon and the periosteum. This suffices as the bony segments are subject to no tension. Pegging of the resected articular ends has never been resorted to; it is quite unnecessary if the saw is used sparingly or a cartilage knife is exclusively employed for the resection. The securing of the ends of the resected joint is effected by a splint. This consists of a hollow trough of wood or celluloid rendered aseptic, and of such a length that it extends from beyond the middle of the posterior surface of the thigh on the one hand to the middle of the calf on the other. The trough is padded with the requisite amount of sterile cotton and gauze and applied to the under surface of the limb as soon as this is ready for dressing. By padding the splint accordingly complete extension or any desired angular position of the ends can be obtained. The leg is then secured to the splint with sterile gauze rolls. This constitutes the "inner dressing." Finally, the whole extremity, from the hip to the toes, is wrapped in a large sterile quilt of wood wool and the "outer dressing," consisting of starched bandages and strips of wood, is fixed in position over it.

If the progress of the wound is aseptic the first dressing commonly remains *in situ* three weeks. The change is readily and painlessly effected by cutting the outer bandage with a small knife and turning it back. The gauze rolls are then snipped through with a pair of scissors and the resected region is laid bare. The drains and sutures may now be removed. Then a fresh splint, padded and ready, is promptly substituted as the old one is removed. The patient scarcely notices the exchange of splints when it is conducted properly, even if the dressing requires to be changed before the third week.

Hip-joint.—The joint is exposed from the posterior side by means of Textor's incision, the capsule opened, and the head dislocated and sawn off through the neck. The healthy acetabulum is then filled with plugging material. The case pursues a perfectly aseptic course. All personal experience[1] is lacking in cases of coxitis tuberculosa, as material of this nature is not obtainable. No doubt, however, can be entertained that the plugging will prove of service in these cases.

The face.—Lately the application of iodoform bone-plugging has been extended to the filling of bone cavities in the facial skeleton—certainly the first cases to receive this kind of treatment. They comprise four cases of dental cyst and two of empyema of the antrum of Highmore. In two instances the dental cysts were situated in the superior maxilla. The first case of dental cyst was explored from the exterior after splitting the cheek by Langenbeck's lunar incision, as the diagnosis appeared uncertain, the possibility of its being a sarcoma could not [illegible]. The exposed anterior wall of the antrum was [illegible] the reflection of the buccal mucous membrane, opening into the mouth and the cyst wall extirpated. After the cavity had been well [illegible] up with "bone plugging" and the wound sutured. Perfect healing by primary intention. A dental cyst in the mandible was also explored exterior by division of the soft parts on [illegible] bone. After elevation of the periosteum [illegible] made through the thinned external wall of [illegible] corresponded in size to a goose's egg. In [illegible] the naked roots of the last molar tooth, which, what dislocated in its socket, were found to [illegible]. The tooth had to be extracted, whereby the fossa of the cyst cavity from the interior of the mouth and an open communication established in the [illegible]. After extirpation of the cyst wall and drying the cavity the communicating canal was temporarily stopped with a finger and the cavity filled. As soon as the plugging material had set the external wound was closed with sutures. Healing by primary intention followed. When the patient's mouth was open the bulging inner wall of the former cyst could be discerned and on the apex of this was situated an aperture of about the size of a hemp seed through which the stiff yellow "plugging" protruded. By degrees the internal prominence of the mandible subsided and the patient left the ward four weeks later devoid of symptoms and with a normally shaped lower jaw.

After the experience gained from this case—viz., that a communication between a plugged cavity in the maxilla and the mouth did not militate in any way against the final success of the operation—a second case of cyst in the lower jaw was operated upon. This was of about the size of a large plum and extended from the lateral incisor to the second bicuspid. The cyst was exposed, not from the exterior but by retracting the lower lip from the gum. A transverse incision was first made into the gum, corresponding in length to the tumour and near to the reflection of the mucous membrane on to the lower lip; the gum, together with the periosteum, was next elevated from the thin papery outer wall of the cyst, the latter was incised, and the greater part of it was removed. Extirpation of the thickened cystic membrane proved very difficult owing to the existence of diverticula between the bare roots of the teeth and the task of separating these from the whole row of loose teeth,

[1] Of Professor Moorhof.

extending from the lateral incisor to the first molar occupied a considerable time. By the intelligent coöperation of the patient, who had not been anæsthetised, in adjusting the position of her head and body, perfect success attended the introduction of the filling substance. After the plugging had set the wound in the gum was sewn up with fine catgut. Apart from a slight swelling of the same side of the face no symptoms were noticed. The case followed an afebrile course and closure of the wound was successful. On the third day the patient left the ward. 14 days later she presented herself in the out-patient department; no swelling was visible and the teeth were set decidedly firmer. She expressed herself highly contented with the operation.

The second case of empyema of the antrum was also dealt with from the mouth, without general narcosis and with the aid of some cocaine and adrenalin. The second molar tooth was lacking; through a defect in the alveolar process the sound could be passed into the maxillary sinus, causing some discharge of pus. On irrigation none of the syringing solution escaped from the nostril. The gum was incised transversely, somewhat below the line of reflection of the mucous membrane, the parts along the canine fossa were raised, and a portion of the anterior bony wall of the sinus, approximately corresponding in length and breadth to a terminal phalanx of the little finger, was removed. To effect this removal a chisel was first employed to make a breach in the wall and the resulting aperture was subsequently enlarged by means of bone forceps. The investing mucous membrane was now extirpated with the aid of a forehead mirror. On the completion of this troublesome step and it being ascertained by means of the eye and finger-that bare bone alone was present, the cavity was filled by tilting the patient's head into a suitable position. Catgut sutures, closely inserted, were employed to unite the gum as soon as consolidation had taken place. Before the introduction of the plugging a small strip of iodoform gauze was inserted into the socket of the tooth and this was subsequently left in situ. The course was afebrile and there was slight swelling of the same side of the face which lasted three days. The plugging was discharged on the fourth day. On examination with Röntgen rays a deep shadow was manifest throughout the whole extent of the antral cavity. The lightly packed gauze which served as a temporary plug for the second tooth was withdrawn on the third day and no discharge henceforward remained, not only in connexion with the mouth but also with the nasal fossa. The plugging, however, the material remained intact and performed its function as a "locum-tenens" without provoking disturbance. When one considers how difficult it is to render a suppurating Highmore's cavity aseptic the valuable properties of iodoform must be acknowledged.

The future course of these cases should prove of interest. Cavities of the maxillæ are bone cavities arising in consequence of pathological changes; there appears, however, to be no doubt that such spaces may become completely obliterated by the gradual approximation of the expanded, shell-like, bony walls. It is another question with an empyema of Highmore's cavity. Can this be obliterated in the same way, since it is really a physiological pre-existing cavity the lining membrane only of which has become diseased through inflammation? Perhaps in a year the question may be settled. For the present it is sufficient for the patient in so far that he can be relieved of his troublesome symptoms in a few days as the discharge of pus ceases and the complicated after-treatment, consisting of syringing continuing for years, &c., is obviated. Since the plugging is, and remains, inclosed no disagreeable odour is communicated to the expired air.[1]

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The result was astonishing. The evening fever ceased, the appetite returned, the nights were good, and the patient quitted her bed on the seventh day and went into the garden. After the dressing was changed on the second day the secretion from the wound became moderate and merely necessitated a fresh dressing every fourth day. The plugging was slowly eliminated and whilst immediately after the operation it did not reach the level of the skin, on the eighth day it protruded through it and was superficially exposed. In 14 days the patient felt quite well and wished to return home, so she left the sanatorium and returned to Bohemia in charge of her mother. The local practitioner had the kindness to keep Professor Moorhof posted concerning the progress of the patient. Some days after their arrival home, on May 29th (the operation and the plugging had been performed on May 13th), asthmatic breathing set in, which suddenly developed one evening into a critical attack of asphyxia. The latter, after lasting about a quarter of an hour, ceased with complete restoration to the normal condition. The seizure returned at the same time on the following day. During the same evening morphine was exhibited and this procured a cessation of the attack and enabled the patient to enjoy a quiet night with undisturbed sleep. Nevertheless, it reappeared during the next forenoon and subsequently the attacks recurred two or three times daily with truly disquieting symptoms. Narcotics procured no relief. Hitherto the dressings had been changed only every four days; now, however, as a mucous discharge was also secreted from the wound in addition to the plugging material, it became necessary to renew the dressing oftener. Moreover, it was noticed that since the first attack the air entered and escaped during respiration through the lower wound with an audible sound. No portions of the plugging material had

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circumspection even this difficulty may be overcome. Accompanying sinuses may be excised. Attention is next directed to the lower segment of the patella; this is drawn downwards and the lower and anterior portion of the capsule is dissected away until healthy tissue is reached. The joint is now bent and the crucial ligaments are divided. The division of the latter is effected by directing the knife towards the inner condylar notch in order to avoid wounding the popliteal vessels inadvertently. The joint now gapes and an excellent view can be obtained of the diseased posterior wall of the capsule and the articular cartilages of the bones which usually exhibit areas of erosion.

Professor Moorhof then proceeds according to the following rule, which is applied in all cases to children—to adults if the bones do not appear much altered—viz., to perform the operation with a stout knife and to remove therewith the cartilage piecemeal from the end of the tibia and the femur. If one or more tuberculous deposits are found in the femur or head of the tibia, as is so frequently the case, they must be cut out of the healthy bone—a mere curetting with spoons does not suffice—and then filled with plugging material. In adults with extensive destruction of the bones concavo-convex slices are sawn off from the ends of both components of the joint, as Helferich recommends, but with children the saw is never used, since the integrity of the epiphyseal cartilage is of vital necessity for unstunted growth. The posterior wall next receives attention and is extirpated as far as possible entire; here, again, the dissection should be persevered with until healthy tissue appears in order to insure the removal of all disease. This excision of the posterior capsular wall is very circumspectly carried out with scissors and rat-toothed forceps and requires a practised hand in view of the fact that the popliteal vessels, particularly the artery, lie immediately behind the diseased capsular wall. Attention is also directed to the niches behind the condyles and the tent-like diverticula of the capsule in this situation, which must be systematically extirpated, as they invariably conceal masses of tuberculous tissue. In adults the saw is employed and it is advisable to remove only thin sections of bone with a sharp fret saw, concave on the tibia, convex to the end of the femur, according to Helferich's method. There is no advantage in sawing off thick slices of bone; it is only detrimental to the patient by producing greater shortening of the limb and by retarding or completely arresting the bony growth.

After a final inspection of the whole field of operation the wound is syringed out with formalin solution and deposits of plugging material are introduced and protected with oiled silk, the tourniquet is released and the bleeding is arrested by ligation. The halves of the patella, having been denuded of their cartilaginous surfaces by the saw, are brought into apposition by a catgut suture which unites the para-capsular soft parts; the wound is drained through the angles. Before the insertion of this suture the plugging material is poured into the gap between the tibia and the femur. The cavity resulting from the extirpation of the supra-patellar bursa is rubbed over with some iodoform powder and the drains are inserted into it. Sutures, or Michel's clamps, complete the operation. The preservation of the dorsal halves of the patella primarily fulfils a cosmetic purpose, in that it prevents the otherwise characteristic indrawing; but it also serves as a buttress of bone which lies perpendicular to the resected joint surface, and acts to a limited degree as a check against a later genu recurvatum and secondary contraction. The patella should only be completely excised if it is quite carious.

Formerly silver wire was used to unite the segments of the patella; then a thread of catgut was wound around them. Now sutures are passed through the thin prepatellar layers—viz., the aponeurotic expansion of the quadriceps tendon and the periosteum. This suffices as the bony segments are subject to no tension. Pegging of the resected articular ends has never been resorted to; it is quite unnecessary if the saw is used sparingly or a cartilage knife is exclusively employed for the resection. The securing of the ends of the resected joint is effected by a splint. This consists of a hollow trough of wood or celluloid rendered aseptic, and of such a length that it extends from beyond the middle of the posterior surface of the thigh on the one hand to the middle of the calf on the other. The trough is padded with the requisite amount of sterile cotton and gauze and applied to the under surface of the limb as soon as this is ready for dressing. By padding the splint accordingly complete extension or any desired angular position of the ends can be obtained. The leg is then secured to the splint with sterile gauze rolls. This constitutes the "inner dressing." Finally, the whole extremity, from the hip to the toes, is wrapped in a large sterile quilt of wood wool and the "outer dressing," consisting of starched bandages and strips of wood, is fixed in position over it.

If the progress of the wound is aseptic the first dressing commonly remains *in situ* three weeks. The change is readily and painlessly effected by cutting the outer bandage with a small knife and turning it back. The gauze rolls are then snipped through with a pair of scissors and the resected region is laid bare. The drains and sutures may now be removed. Then a fresh splint, padded and ready, is promptly substituted as the old one is removed. The patient scarcely notices the exchange of splints when it is conducted properly, even if the dressing requires to be changed before the third week.

Hip-joint.—The joint is exposed from the posterior side by means of Textor's incision, the capsule opened, and the head dislocated and sawn off through the neck. The healthy acetabulum is then filled with plugging material. The case pursues a perfectly aseptic course. All personal experience[*] is lacking in cases of coxitis tuberculosa, as material of this nature is not obtainable. No doubt, however, can be entertained that the plugging will prove of service in these cases.

The face.—Lately the application of iodoform bone-plugging has been extended to the filling of bone cavities in the facial skeleton—certainly the first cases to receive this kind of treatment. They comprise four cases of dental cyst and two of empyema of the antrum of Highmore. In two instances the dental cysts were situated in the superior maxilla. The first case of dental cyst was explored from the exterior after splitting the cheek by Langenbeck's semi-lunar incision, as the diagnosis appeared uncertain, and the possibility of its being a sarcoma could not be excluded. The exposed anterior wall of the antrum was removed above the reflection of the buccal mucous membrane without opening into the mouth and the cyst wall was carefully extirpated. After the cavity had been well dried it was filled up with "bone plugging" and the wound in the cheek was sutured. Perfect healing by primary intention resulted. A dental cyst in the mandible was also explored from the exterior by division of the soft parts on to the body of the bone. After elevation of the periosteum an incision was made through the thinned external wall of the cavity, which corresponded in size to a goose's egg. In the interior of this the naked roots of the last molar tooth, which was somewhat dislocated in its socket, were found to be projecting. The tooth had to be extracted, whereby the former exclusion of the cyst cavity from the interior of the mouth was lost and an open communication established in the alveolus. After extirpation of the cyst wall and drying the cavity the communicating canal was temporarily stopped with a finger and the cavity filled. As soon as the plugging material had set the external wound was closed with sutures. Healing by primary intention followed. When the patient's mouth was open the bulging inner wall of the former cyst could be discerned and on the apex of this was situated an aperture of about the size of a hemp seed through which the stiff yellow "plugging" protruded. By degrees the internal prominence of the mandible subsided and the patient left the ward four weeks later devoid of symptoms and with a normally shaped lower jaw.

After the experience gained from this case—viz., that a communication between a plugged cavity in the maxilla and the mouth did not militate in any way against the final success of the operation—a second case of cyst in the lower jaw was operated upon. This was of about the size of a large plum and extended from the lateral incisor to the second bicuspid. The cyst was exposed, not from the exterior but by retracting the lower lip from the gum. A transverse incision was first made into the gum, corresponding in length to the tumour and near to the reflection of the mucous membrane on to the lower lip; the gum, together with the periosteum, was next elevated from the thin papery outer wall of the cyst, the latter was incised, and the greater part of it was removed. Extirpation of the thickened cystic membrane proved very difficult owing to the existence of diverticula between the bare roots of the teeth and the task of separating these from the whole row of loose teeth,

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The future course of these cases should prove of interest. Cysts of the maxillæ are bone cavities arising in consequence of pathological changes; there appears, however, to be no doubt that such spaces may become completely obliterated by the gradual approximation of the expanded, shell-like, bony walls. It is another question with an empyema of Highmore's cavity. Can this be obliterated in the same way, since it is really a physiological pre-existing cavity the lining membrane only of which has become diseased through inflammation? Perhaps in a year the question may be settled. For the present it is sufficient for the patient in so far that he can be relieved of his troublesome symptoms in a few days as the discharge of pus ceases and the complicated after-treatment, consisting of syringing continuing for years, &c., is obviated. Since the plugging is, and remains, inclosed no disagreeable odour is communicated to the expired air.[1]

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FIG. 1.

Before operation.

FIG. 3.

Five weeks after operation.

FIG. 2.

Two weeks after operation.

FIG. 4.

Twelve weeks after operation.

been coughed up at this time. The sputum was only moderate in quantity and consisted of tenacious transparent mucus. The pulse was accelerated (up to 160). No fever was present. On the morning of June 5th an attack again supervened, during which the face became œdematous and markedly cyanotic. The girl succumbed on June 7th to the progressive increase of these symptoms. The plugging also in this instance acted as a "locum-tenens," but that it could effect a cure in such a hopeless case no one for an instant ventured to believe. Enough that it was tolerated and that sepsis was prevented.

Appended to the above in the original monograph is a compilation of the histories of all the cases operated upon by Professor von Mosetig Moorhof. The collection comprises some 79 cases of osteomyelitis, 108 cases of tuberculous disease, two orthopædic cases, two fillings of the antrum of Highmore, and four of dental cysts. Professor Moorhof states, in conclusion, that in no single instance has he to report a failure. From this appendix one case has been selected which has immediate reference to the illustrative reproductions of skiagrams. (Figs. 1, 2, 3, 4, and 5.)

FIG. 5.

Thirty-three weeks after operation.

The patient was a stonemason, aged 28 years. In July, 1902, he had an abscess on the lower part of the right leg which was incised. At the end of October a fistula formed with copious secretion. When seen on Nov. 22nd the region over the internal malleolus was swollen; a sinus was present leading down to raw bone. A diagnosis of osteomyelitis tibiæ was made. On Dec. 5th erasion was performed with subsequent plugging of a cavity in the tibia of the size of a hen's egg. On Dec. 14th the dressings were changed. The wound healed by first intention. The patient was discharged healed on March 11th, 1903.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At a stated meeting of the Royal College of Physicians of Ireland held on Jan. 13th the following candidates were admitted to the Membership of the College: Edward J. M. Watson, M.D. Dub., and T. Gillman Moorhead, M.D. Dub. At the previous meeting of the College held on Jan. 6th Lieutenant-Colonel F. C. Reeves, I.M.S., was admitted to the Membership.

A CASE OF ACUTE LEUKÆMIA,

WITH REMARKS ON ITS CLINICAL FEATURES AND DIAGNOSIS.

BY W. MITCHELL STEVENS, M.D. LOND., M.R.C.P. LOND.,

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CASES of acute leukæmia which are usually of the lymphatic type are especially prone to occur in young subjects and they are of much clinical interest as the difficulties in diagnosis may be very great. The case which I am about to record occurred some months ago in the practice of my friend, Mr. F. Temple Morris, to whose kindness I am indebted for seeing it.

The patient, a boy, aged 17 years, complained of general weakness, slight headache, loss of appetite, and painful priapism. The family history was good. The lad himself had enjoyed excellent health until his present illness which commenced one week before sending for his medical attendant with the above-mentioned symptoms. Six months previously the patient had fractured his thigh but he had rapidly recovered from this accident. When first seen on the eighth day of his illness he showed marked pallor and weakness; the temperature was 102° F., the pulse was 84, and the respirations were 24, and a careful physical examination failed to discover anything except very marked and continuous priapism. On the tenth day of illness the blood was tested for Widal's reaction with a negative result. On the thirteenth day of illness I saw the patient in consultation with Mr. Temple Morris and his condition was as follows. He was dull, apathetic, and irritable and complained of headache, weakness, loss of appetite, and great pain in the penis, with difficulty in passing his urine. He was pale, prostrated, and wasted. His temperature was continuously raised and varied irregularly between 100° and 103°, the pulse was 98 and regular though weak, and the respirations were 26. The skin was dry and sweatings were absent and a careful inspection showed a few small hæmorrhagic spots on both flanks. There was no glandular enlargement. The appetite was very poor but there were no gastro-intestinal symptoms and the bowels were regular and the stools were normal. The tongue was clean though dry, the gums were normal, there was no abdominal distension or tenderness, the liver was not palpable, but the spleen was slightly enlarged but not tender. The heart and lungs were normal, as was the urine. The penis showed marked priapism which condition was continuous and painful. A blood examination showed red corpuscles 1,620,000 per cubic millimetre and leucocytes 920,000 per cubic millimetre and it was found that the excess of leucocytes was due entirely to the large lymphocytes. On the twelfth day it was found that the spleen was still further increased in size and distinct enlargement of the glands in both axillæ and in both groins was felt. The patient sank rapidly and died 19 days from the commencement of the illness.

The following points are, I think, worthy of note: 1. The duration of the illness. The entire illness lasted less than three weeks. 2. The general symptoms. The mode of onset and the general symptoms (headache, malaise, pallor, and continued fever) suggested the probability of typhoid fever and the possibility of tuberculosis or of malignant endocarditis or some "septicæmic" condition. Typhoid fever, however, was excluded by the absence of any other symptoms or signs of the disease, including Widal's reaction, and, moreover, the course of the pyrexia and the presence of priapism militated against that disease. Tuberculosis and malignant endocarditis were excluded by the history and by a thorough examination. 3. Splenic enlargement. This was not noticed until the thirteenth day of the illness. The spleen was only slightly enlarged and it was very firm and not tender. The splenic enlargement, associated with pallor and with purpuric spots on the flanks, suggested some diseased blood condition. It is to be remembered, however, that in cases of lymphatic leukæmia the spleen is not always obviously enlarged. 4. Glandular enlargement. Enlargement of the lymphatic glands did not make its appearance until after the thirteenth day, by which time the diagnosis

had been made by means of a blood examination. It may be noted that the glandular enlargement progressed rapidly in the last few days of life. 5. Blood examination. This showed conclusively that the case was one of acute lymphatic leukæmia. An interesting point in this connexion is the enormous number of lymphocytes present. 6. Priapism. During the whole of the time that this patient was under observation there was marked and continuous priapism and this condition gave rise to much distress. In conclusion, one may say that a case like this shows the very great clinical importance of a blood examination in doubtful cases and, indeed, in this instance it was thus possible to diagnose the presence of lymphatic leukæmia before any glandular enlargement was observable.

Cardiff.

A CASE OF CONTRACTURE AND ANKYLOSIS AT THE KNEE TREATED BY STEEL-BAR TRACTION AND HESSING'S SPLINT CASE APPLIANCE.

BY T. H. OPENSHAW, C.M.G., M.S. DURH., F.R.C.S. ENG.,

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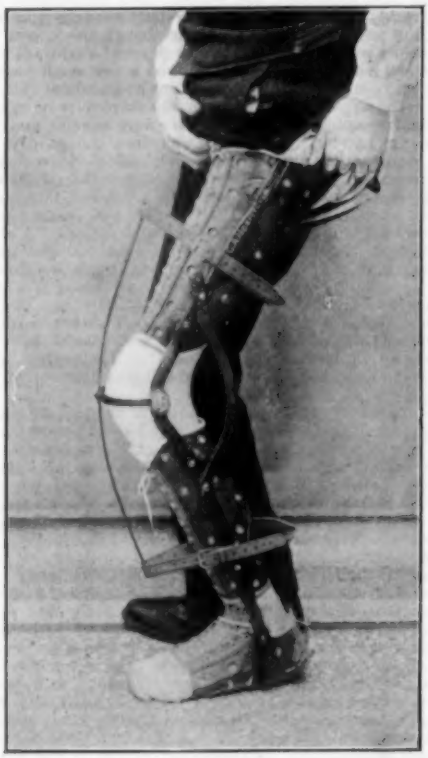
THE patient, a boy, aged 15 years, came under my care at the London Hospital in January, 1904, with close fibrous ankylosis and contracture of the left knee. The knee first became painful and stiff when the patient was five years old. He was treated with plaster of Paris, &c., but abscesses formed which burst. There were two cicatrices above the external condyle and one over the ligamentum patellæ and evidences of extensive tuberculous disease resulting in ankylosis. The knee became flexed and contracted and this remained so, but during the year 1903 it had been getting slowly more marked. In January, 1904, the angle of the knee-joint was 112 degrees. The hamstring muscles were contracted. There was power of motion of the knee only to the extent of one degree. The muscles of the thigh were wasted but there was no paralysis. The patient walked well with the toes on the ground but the left half of the pelvis dropped four inches in order that the toes should reach the ground. There was marked left dorso-lumbar lateral curvature.

FIG. 1.



The apparatus applied, Feb. 26th. The knee is flexed at an angle of 112 degrees.

FIG. 2.

Showing the knee straight on April 15th.

On Feb. 26th Hessing's splint case appliance, with steel-bar traction, was adjusted to the limb, the knee being then flexed at an angle of 112 degrees (see Fig. 1). Very slowly and steadily the knee began to extend, without pain, œdema, or other inflammatory symptom. As the knee extended so the arched steel bar at the back of the knee was readjusted and on April 15th the leg was straight (see Figs. 2 and 3). The accompanying diagram (Fig. 4) shows the steady improvement that had taken place at different dates.

The appliance consists of three cases made of leather, one accurately moulded to the thigh, a second to the calf, and a third to the foot. Each is strengthened with steel bars. These steel bars are accurately moulded to the part and are then sunk into the softened leather. These bars carry certain plates of steel which project through the leather and in which are various screw-holes for their firm attachment to two lateral steel bars which pass down from the thigh case to the ankle. The leather cases by this means not only are firmly attached to the lateral bars but can be adjusted either a little upwards or a little downwards. The splint thus forms one uniform whole which accurately fits

FIG. 3.

Front view of straight leg, April 15th.

the leg from the ankle-joint to the top of the thigh. Each leather case is open in front and is made to lace up.

The foot leather case is fitted with a sole plate carrying upright bars on each side with steel pegs in them. The pegs fit in holes at the lower end of each of the lateral bars and by this means traction upon the lower part of the leg is made. Crossing the front of the knee is a steel arch fitted on each side into the joint between the thigh and the leg. It carries a slot through which passes an elastic steel bar, to each end of which is attached a strap. These straps buckle to the lateral steels of the thigh and leg cases (see Fig. 1). The upper end of the steel bar having been buckled tight, as the lower straps are tightened so the leg is drawn forward and the knee is straightened. At the back of the knee is an arched steel bar, with a slot at the lower end and with screw-holes at the upper end. As the leg gets straighter the straightening is followed up and secured by increasing the length of this bar. The slot at the lower end of the bar allows the knee to extend but prevents flexion.

FIG. 4.

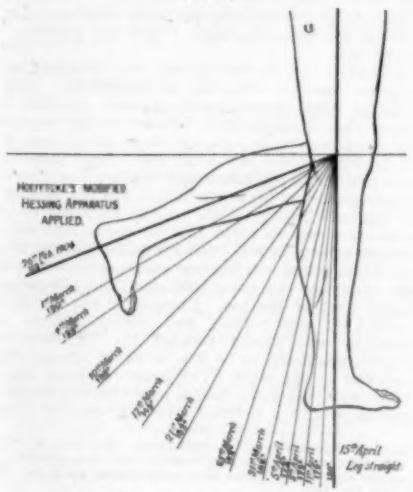


Diagram to show the progress of the case.

Remarks.—This case was one of the closest possible fibrous ankylosis, practically no movement being obtainable at the knee-joint. The contracture and flexion of this joint were steadily getting worse, so that only the tips of the toes touched the ground, and the pelvis being tilted scoliosis resulted. The knee was straightened in six weeks without any pain being experienced during the process. The patient was not incapacitated even for a day. The movement at the knee-joint continued very slowly to increase in extent.

In my opinion, every case of fibrous ankylosis and contracture of the knee can be straightened by means of this steel-bar traction method. This method should supersede forcible straightening of the knee under anæsthetics, which occasionally results in rupture of the popliteal vessels or in lighting up the quiescent tuberculous disease and frequently causes an increase of the pre-existing stiffness of the joint.

Wimpole-street, W.

HUMAN PIROPLASMOSIS.[1]

BY C. DONOVAN, M.D. R.U.I.,
MAJOR, I.M.S.; SECOND PHYSICIAN, GENERAL HOSPITAL, MADRAS.

(Concluding Part.)

THE piroplasmata are found in the peripheral circulation, the spleen, the liver, the bone marrow, the submucosa of the large intestine, ulcers of the skin and large intestines, and occasionally in the kidneys and the suprarenals.

In the peripheral circulation the parasite is met with in the red blood corpuscles and in the polymorphonuclear and mononuclear leucocytes; it is only when the temperature is high, between 103° and 104° F., that their occurrence in this situation is noticed. Their numbers vary and are never at any time great; in an examination of a slide for half an hour six might be found in the red blood corpuscles and double to treble that number in the leucocytes. In the red blood corpuscles the organism is small, 1 μ to 1½ μ in diameter, in shape bacillary, pear-shaped, oval or spherical, with one chromatin mass, oval or oblong, always placed at the circumference. The forms represented in Fig. 7 of the coloured plate attached to the first portion of my paper depict their different shapes. The red blood corpuscles containing the one-chromatin parasite are not altered in shape, size, or in staining reaction from the normal uninfected cells. Here also may be found rarely shrunken red cells stained blue instead of greenish-yellow, which contain the double chromatin parasite to be described immediately below. In the polymorphonuclear and mononuclear leucocytes (Fig. 7) the organisms always possess double chromatin masses.

In the blood taken by puncture from the spleen during

[1] The second and concluding part of the paper, the first part of which was published in THE LANCET of Sept. 10th, 1904, p. 744. This part was lost in transit, which accounts for the delay in publication. A detailed description is appended of the coloured illustration which appeared in the first part.

DESCRIPTION OF PLATE.

(Magnification about 1500 diameters; Romanowsky staining was used.)

FIG. 1.—The different forms of piroplasma Donovani found in blood taken by puncture of spleen during life.

FIG. 2.—Details of structure of parasite showing vacuoles and chromatin threads attached to the smaller chromatin mass.

FIG. 3.—Cleared specimen showing blue protoplasm of the parasite.

FIG. 4.—Changes in the infected red blood corpuscles.

FIG. 5.—Multiplication forms.

FIG. 6.—Parasites associated with pigment in red blood corpuscles and macrophage.

FIG. 7.—Parasites in the peripheral circulation.

FIG. 8.—Macrophage from spleen blood with numerous piroplasmata in protoplasm, one apparently in the nucleus. Nucleus of splenic cell with dark nodal staining resembling piroplasma Donovani in appearance.

FIG. 9.—Blood taken from a smear post mortem.

life the forms are varied and numerous, they occur free, in altered and unaltered red blood corpuscles, in the protoplasm of the mononuclear leucocytes and macrophages. The most typical form is either oval or spherical, measuring 2·5 μ to 4 μ by 1·5 μ, with two chromatin masses, staining deeply with methylene-azure, especially the smaller of the two which takes on a clearer and more brilliant shade of the stain; the two chromatin masses are placed opposite each other, the larger, round or oval, has, as a rule, a looser texture than the smaller one which is more compact and dot or rod shaped (*vide* Fig. 1). With deeper Romanowsky staining a chromatin thread appears to connect the smaller mass to the periphery of the organism (*vide* Fig. 2) and at times a similar thread connects the two masses. In some preparations vacuoles appear to exist in the cell body but these I consider artificial (*vide* Fig. 2). The cell substance of the parasite is very clear and hyaline and not granular; it usually stains a light greyish pink with Romanowsky stain, the shade being darker at the periphery than towards the centre. However, if the preparation is well and carefully cleared with alcohol the protoplasm comes out a light blue, darker at the periphery with strands extending towards the larger chromatin mass. Such an appearance is shown in Fig. 3. Besides the above described there are pear-shaped and fusiform forms possessing one or two chromatin masses and stages in the multiplication of the parasite by bipartition and multipartition (*vide* Figs. 1 and 5). A few of the organisms possess a very light-coloured larger chromatin mass with an accentuated dark smaller one; two are shown in Fig. 1.

The piroplasma when included in the red blood corpuscles brings about marked changes in the structure and staining properties of the stroma; as long as the parasite possesses a single chromatin mass the red cell is unchanged but on the advent of the smaller chromatin mass the infected cell alters in its staining reaction. The normal yellowish-green colour of the cell assumes a blue tinge, beginning at the periphery and extending towards the centre till the whole infected cell is changed from a homogeneous yellowish-green disc to a finely reticular and blue-stained form (*vide* Fig. 4).

The altered red blood corpuscles at times increase in size when harbouring more than four or five parasites and at times decrease when containing a single individual. Appearances of double chromatin parasites included in unaltered red blood corpuscles I consider delusive; the organisms in such cases are superimposed. (But this statement I make with great reserve as those skilled and experienced observers, MM. Laveran and Mesnil, consider them as inclusions.)

The number of organisms in the mononuclear leucocytes vary from two or three to half a dozen, but it is in the macrophages that we meet with them in large quantities, where from 150 to 200 may be counted, crowded and packed in the protoplasm of one of these giant cells (*vide* Fig. 8). A few may be seen in the nucleus but these are probably superimposed. As a rule pigment is not associated with this piroplasma but in about seven of the cases there was well-marked evidence of such an occurrence. The pigment was of golden-brown to vandyke-brown in colour, present both in the altered red blood corpuscles and the protoplasms of the mononuclear leucocytes and macrophages (*vide* Fig. 6). The pigment was not an artefact; special care was taken to exclude such an accident. In the above cases pigmentation was present in the liver and spleen examined macroscopically and microscopically. In the smears taken from the spleen post mortem the organism is not so well defined as during life; it is smaller and the outline of the cell of the parasite is by no means so well demarcated. The two chromatin masses in juxtaposition, however, draw one's attention to their presence in the preparation (*vide* Fig. 9). The likeness of the parasites to changes in the nodal thickening in the nucleus of the splenic pulp cells is marked and would give rise to confusion to an inexperienced observer. (*Vide* the nucleus of the splenic cell in the sinus below the long horizontally extended pseudopodium of the macrophage in Fig. 8, where this deceptive appearance is shown). I have not touched on the microscopical appearance of the tissues and organs found in this disease as leisure was denied me in entering into but a cursory examination of such preparations.

As to the nature of the parasite, I consider myself justified in adhering to the experienced and authoritative opinions of MM. Laveran and Mesnil. The one chromatin forms in the peripheral circulation have the closest resemblance to piroplasma bigeminum but I have not so far succeeded in observing any enlarged spleens in calves suffering from "Texas fever" in Madras so cannot compare the full-grown double chromatin forms (probably gametes) of these species of piroplasma. I may say, however, that I exclude entirely the genus trypanosoma as having any relation to the disease. I have now examined carefully fully over 1500 slides of blood of patients suffering from piroplasmosis and have never come across anything having the least resemblance to a trypanosome. Yet I do not exclude a trypanosoma, or rather a trypanosomoid stage, in the life-cycle of piroplasma infection.[2]

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SUPPURATIVE PERICARDITIS.

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THOUGH many cases of suppurative pericarditis have been recorded in which recovery has taken place still the mortality of this disease must remain very high. It is chiefly by surgical means that relief or a cure can be hoped for, and with the view of encouraging the early employment of free drainage of the pericardial sac I give an account of an illustrative case.

The patient, a boy, 13 years of age, was admitted into the David Lewis Northern Hospital on August 9th, 1904. He had enjoyed good health until a week previous to his admission, when his right ankle became swollen and painful without apparent cause. A few days later there was a painful swelling of the left great toe. Both ankle and toe had been poulticed. On admission the boy was very ill and complained greatly of his ankle, which was red, swollen, and acutely tender. The great toe was in the same condition. His respiration was so rapid that he spoke with difficulty, his temperature was 100° F., and his pulse-rate was 140.

It was obvious that the boy was suffering from suppurative arthritis involving the ankle-joint and also the metatarso-phalangeal joint of the toe. Chloroform was administered, the ankle-joint was rapidly and freely opened, and a drainage-tube was passed through it. The cause of the suppuration was found to be due to acute osteomyelitis of the lower end of the tibia. The great toe joint was at the same time dealt with and a similar condition was found there. In accordance with a practice which I have for a number

[2] Vide Schaudinn's wonderful preliminary contribution, "Generations und Wirtswechsel bei Trypanosoma und Spirochaete" in the Arbeiten aus dem Kaiserlichen Gesundheitsamte, Band xx., Heft 3, pp. 387 and 433, 439.

of years invariably adopted in cases of this nature I examined the pericardial region. The heart sounds were faintly audible and the pericardial dulness, or rather flatness, was markedly increased upwards and also extended to the right of the sternum. I strongly suspected that this was due to an accumulation of pus and the diagnosis being confirmed by means of an exploring syringe I at once opened the pericardium by making an incision in the fourth left intercostal space, three-quarters of an inch from the margin of the sternum. With dressing forceps the incision was enlarged and a quantity of greenish-yellow pus escaped. A drainage-tube was inserted. At the completion of these operations, which were all done at one time, the boy's condition was extremely grave. He rallied, however, in the course of a few hours and after a prolonged convalescence made a very satisfactory recovery.

In the after-treatment of the case the chief difficulty we had was in connexion with the imperfect drainage of the pericardial sac. The incision made for this purpose was directly over the heart, with which the drainage-tube came in contact, and I firmly believe the boy's ultimate recovery was largely due to the care and attention bestowed upon him by my house surgeon, Mr. T. St. John Barry, who twice daily for several weeks passed a catheter through the wound and round to the back of the heart and then by means of a small glass syringe attached to the catheter washed out the pericardial cavity. The wounds of the ankle and toe healed long before the pericardial wound which finally closed on Nov. 1st, having discharged for nearly three months. The boy left the hospital on Nov. 10th and apart from a little lameness is in excellent health.

Though I have several times operated for suppurative pericarditis this is my one successful case. I would draw attention to what I believe to be an important clinical fact—namely, the not infrequent association of suppurative pericarditis with acute osteomyelitis. Why in such cases the pericardium should become involved I do not know but I have so frequently met with this complication that I now invariably examine for it and the sign I place most reliance upon is increased cardiac dulness. Another point of interest is how best to drain the pericardial cavity, for in this class of case if there is increased pericardial effusion it is almost certainly purulent and, if circumstances permit of it, should be evacuated.

A number of different methods of operating have from time to time been suggested, many of them too elaborate and extensive to be of any practical value for in dealing with a case of suppurative pericarditis one is dealing with an acute abscess in a very ill person and whatever is done in the way of an operation must be done quickly. As the opening must be made from the front it is impossible to obtain dependent drainage so long as the patient lies on the back; but if the opening is made in the costo-xiphoid space, as suggested by the late Mr. Herbert W. Allingham, together with removal of a portion of the seventh costal cartilage if considered necessary, as recommended by Mr. Herbert S. Pendlebury, then with the patient propped up in bed we have the most dependent opening for drainage that can be obtained. If for any reason the drainage should not be satisfactorily maintained, I would not hesitate to employ gentle irrigation as was so successfully done in the case to which I have referred.

Liverpool.

CONGENITAL MULTILOCULAR CYST OF THE OMENTUM.

BY W. MCGREGOR YOUNG, M.A., M.D. GLASG.

IT but rarely happens that amongst the enormous amount of medical literature published at home and abroad the searcher has any difficulty in finding reports on cases similar to his own. But the condition in question must be a rare one, for after a most diligent seeking in all the sources available to me I have found but one other case of the above disease. That one was reported by Professor Hearn of Philadelphia in the Annals of Surgery for 1897 and in describing it the author makes the remark that he has found no note of any similar case. On this account alone I think the following details are worth recording at length, but the unexpectedly successful termination of the case has, I confess, given me a stronger reason for making a report.

The patient, a girl, aged nine and a half years, although looking younger, was brought to see me on account of a swelling in her body. She was a child with a sallow, rather pasty complexion and small for her years. Her mother had noticed the body decidedly swollen and large for more than a year previously and had taken her about that time to see a medical man who pronounced it "consumption of the bowels." The mother thought the child was always full and prominent in the body from infancy. No pain was complained of nor apparently discomfort; child-like, she accommodated herself to her condition. She was easily tired and readily out of breath although she could sleep without propping-up. She was much emaciated in the chest, the arms, and the legs. She had attended school up to three months previously and even now ran about and played. Appetite and digestion were good and the bowels were regular. On examination the body was seen to be enormously distended and nearly uniformly so but probably more in the epigastric region. Distended veins were marked on its surface; the lower ribs were bulged outwards. The body was firm and elastic; there was no hardness or rigidity anywhere. There was complete dulness to percussion all over—not a resonant note anywhere. Turning her on either side made no difference, nor in the erect position was there anything but a dull note in the epigastrium. Fluctuation was evident and a very decided thrill-wave made it certain that it was fluid. I was puzzled how to reconcile these facts but decided that the peritoneal cavity was so completely full as to explain them—an erroneous conclusion. As the child's breathing was becoming more embarrassed an operation was advised. I could think of nothing more likely than tuberculous peritonitis and so informed the mother that draining away the fluid might probably cure and would certainly relieve the condition. The temperature was normal and the urine contained no albumin. The lungs were crowded up and the heart was displaced upwards and outwards beyond the nipple line.

A small incision being made in the middle line and the peritoneum opened, a bit of what appeared like gangrenous bowel protruded through, but no fluid came. Prolonging the incision upwards to the umbilicus and downwards to near the pubes I made clear by putting in my fingers that I had a cystic condition to deal with and evidently multilocular. I tried tapping, but the cyst wall was so thin and offered so little resistance that there was no success. I therefore incised and a gush of dark brown fluid, evidently broken-down blood and serum, followed. As this emptied but one loculus I required to treat the others within reach in the same way. After relieving the cavity of a large quantity of fluid I could insert my whole hand and feel the extent of the tumour. I found that it extended to the stomach, beginning near the pylorus and reaching round the great curvature to the cardiac end, and from there right across to the spleen, the gastro-splenic omentum consisting of one large loculus. The child became very ill under the ether and as the anæsthetist (Dr. S. Clark) gave a very bad account of the pulse and the task of removing the whole was a very formidable one I thought it better to tie off what there was of collapsed cyst wall about two inches above the level of the umbilicus. This I did in the usual way as if dealing with normal omentum, for omentum it clearly was, and, in fact, by dragging upwards the wound Mr. J. J. Anning, who assisted me, and I had a good view of the stomach with the dark-purple cysts bordering and overlapping it intimately around. A good deal of mopping out was required to be done in the pelvis where the organs were quite normal. In making the toilet of the cavity before closing I found a bit of healthy omentum running up to the transverse colon, so that evidently the cysts involved only the anterior layers of the great omentum. The fluid that was caught measured 32 pints but five or six pints more at least must have run to the floor, much to our discomfort. The fluid and cyst wall were unfortunately not examined.

The little patient was much collapsed after the operation but soon rallied with the help of strychnine and saline injections and three or four hours later was quite bright and cheerful. She complained so much of thirst that I allowed her then half a pint of weak tea and milk. During the first seven days she did well, the pulse was good, the temperature was normal, and nutriment was taken fairly. Some ounces of fluid were drawn off daily for the first few days and a lessening quantity during the next few days through the Bantock's tube left in to drain the pelvis. A rubber tube was substituted for the glass one at the end of a week but this

also was withdrawn by the tenth day. The temperature began to mount on the eighth day and remained continuously high for the next 18 days, between 101° and 103° F. During this time the dulness in the left hypochondrium and epigastrium increased in area, the cysts fringing the stomach, and specially that in the gastro-splenic omentum, were enlarging rapidly till they could be recognised as low as the left iliac region and thence in a diagonal line up to the pylorus. I thought the fever to be hæmorrhagic. The child took little support and became painfully emaciated; the abdomen was unevenly bulged. The rest of the story would be too long to repeat in detail here, but for the next six weeks the temperature ranged from nearly normal at some part of the day, usually morning, to 102° or more, usually at night, and then she began to recover. Her appetite returned, her colour improved, the pulse was less rapid, and by the end of June, three months after the operation, she was cheerful and comparatively well. The curious thing was that some time about the sixth week on percussing the abdomen I could find no trace of the cyst, there was resonance everywhere, and yet the body was much diminished in size. This shrinking of the abdomen became more and more marked until it was painfully retracted owing to the prominent bulging of the lower part of the chest wall. The remainder of the cyst had disappeared. It had apparently enlarged so rapidly as to burst itself and its fluid contents had been absorbed. Did this also account for the continuance of the high temperatures? At all events the child got well and after two months in a convalescent home she returned looking rosy, fat, and in good health and this in marked contrast to what her appearance had been from infancy—sallow, thin, and puny. She looks now (Jan. 15th) in the best of health and the abdomen is resonant everywhere. What marks the case as more certainly congenital was a fact elicited long after the operation. It seems that four and a half years previously while in the scarlet fever hospital the nurses were much astonished at the size of the child's abdomen and remarked upon it. Much credit is due to the care given to the case by the district nurse, to whom I am glad to make this acknowledgment.

Leeds.

FRACTURE OF THE ANTERIOR FOSSA OF THE SKULL DIVIDING THE OPTIC NERVE.

BY FRANK J. HATHAWAY, M.D. EDIN.,

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THIS accident is sufficiently rare to warrant my publishing the following case which came under my care in the Windsor and Eton Royal Infirmary.

A man, aged 25 years, was cycling on May 20th, 1904, by night and collided with a tree. He lay on the ground unconscious for six hours and was then brought to the hospital. Here he was seen by the house surgeon and found to be conscious, with a severe contusion of the right side of the face and a wound over the bridge of the nose. There was much subconjunctival hæmorrhage in the right eye and both eyes were closed by the swelling of the lids. Three days after, when he was able to open his eyes, he complained that he could not see with his right eye. I was asked to see him and found the following condition. There was pain above the right eye and over its supra-orbital margin, which latter was tender. There was no ophthalmoplegia but a large amount of subconjunctival hæmorrhage was present. The right pupil was semi-dilated and not reacting to light but acting consensually. In the right eye there was absolutely no perception of light. The ophthalmoscope showed nothing abnormal; no changes in the vessels or other structures were to be seen. A diagnosis of division of the right optic nerve by a fracture of the anterior fossa was made and I watched him daily for signs of optic atrophy. On the seventh day it was noticed that there was some commencing pallor of the temporal side of the disc and on the fourteenth day that there was pallor of the whole disc, but especially on its temporal side. On the twenty-eighth day a note was made that the disc was quite white and in this condition it has remained. He is now absolutely blind in the right eye and the disc is very white. In the left eye vision and ophthalmoscopic appearance are normal.

The literature on this subject is very scant and I find very few recorded cases where a limited fracture of the anterior fossa has picked out and divided the optic nerve. Mr. H. B. Grimsdale tells me he has had one case under his care at St. George's Hospital and Dr. L. Phelps in his work on Head Injuries gives a list of six. Pathological examination divides these cases into two groups due to different causes—namely, (1) unilateral blindness following division of the optic nerve, and (2) that following hæmorrhage into the optic nerve sheath. Thus Professor Helferich in his work on "Fractures and Dislocations" states that of 168 cases of fracture of the skull eight cases of blindness were due to extravasation of blood into the optic nerve sheath. Mr. Jonathan Hutchinson notes that blindness of one or both eyes may follow a fractured base as a result of laceration of the optic nerve or of hæmorrhage into its sheath. Professor Tillmann in his "Text-book of Surgery" suggests that cases of blindness following fracture may be due to hæmorrhage or to direct injury of the optic nerve by a fracture passing through the optic foramen or indirectly by broken-off splinters of bone from the roof of the orbit or optic foramen. Mr. T. Pickering Pick said that if the fracture involves the lesser wing of the sphenoid laceration of the optic nerve may be produced. Mr. H. E. Juler in his work on "Ophthalmology" says that hæmorrhages into the optic nerve sheath are considered to take place but they have never been proved to exist. Professor Fuchs in his work makes no mention of hæmorrhages in the optic nerve sheath as a cause of unilateral blindness but (p. 493) says that in these cases of unilateral blindness following an indirect injury to the head we are dealing with fractures of the walls, particularly of the upper wall, of the orbit, which fractures are continued into the optic canal, so that the optic nerve in the latter is crushed or lacerated. Lately, Mr. L. B. Rawling, in his Hunterian lecture, 1904, has suggested that such damage of the optic nerve in fractures of the skull is caused by the anterior clinoid process being torn off and rotating inwards, so that the rough edge comes to press on and to lacerate the nerve. The balance of evidence in cases of unilateral blindness following an injury to the head is in favour of causation by a fracture of the anterior fossa which lacerates the nerve, and it seems improbable whether hæmorrhage into the nerve sheath has any effect in causing such blindness.

The escape of the ophthalmic artery from injury, which lying below and to the outer side of the nerve should in fracture through the optic foramen be damaged, seems to point to a splinter of bone, such as the anterior clinoid process, as the immediate factor in causing the division.

Windsor.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. MARYLEBONE INFIRMARY.

A CASE OF SUBCUTANEOUS EMPHYSEMA IN PULMONARY TUBERCULOSIS.

(Under the care of Mr. JOHN R. LUNN.)

FOR the notes of the case we are indebted to Mr. D. Murray Ross, the assistant medical officer of the infirmary.

The patient was a man, aged 44 years, who was admitted into the St. Marylebone Infirmary on Nov. 17th, 1904, suffering from pulmonary tuberculosis of some months' duration. The physical signs denoted considerable infiltration and consolidation of the tissue of both lungs but no cavitation. Three weeks subsequently he complained of sudden pain over the region of the left apex. 12 hours later he complained of dyspnœa, pain in the neck and chest, swelling of the neck, and a sensation of suffocation. The anterior and lateral

surfaces of the neck and the upper part of the chest on the left side were then observed to be swollen and slightly congested. The tissues crackled under the fingers and fine crepitations were heard over the affected parts on inspiration. The emphysema extended from the left apex completely over the left posterior triangle up to the angle of the jaw on that side, thence over the anterior aspect of the neck to the right side. The lower limit was roughly the level of the third rib and the right limit an irregular line drawn from the right sterno-clavicular joint to the angle of the jaw on that side. The right posterior triangle was free, as was also the anterior surface of the chest on the right side. Examination at this time failed to show any signs of cavitation of the lung or of pneumothorax. The treatment consisted in the administration of morphine to quieten the breathing and absolute rest in bed with a low diet. For three days the limits of the crepitant tissue remained about the same but at the end of that time it was observed that the emphysema had completely disappeared, that the respirations had quietened, and that the neck had regained its normal proportions. Three weeks afterwards the man was in a state of health similar to that which he presented on admission, there being no return of the symptoms. It may be added that preceding the sudden pain he had made no violent respiratory effort nor did he become collapsed or cyanosed during or after the onset of the pain. No paracentesis of the chest had ever been performed on the patient.

Remarks by Mr. ROSS.—Professor William Osler in his "System of Medicine" states that subcutaneous emphysema is a rare complication of pulmonary tuberculosis and gives as its probable cause either (1) perforation of the trachea or (2) rupture of a cavity. Absence of symptoms suggestive of perforation of the trachea excluded that diagnosis in this particular case and the conclusion come to was that a small cavity over which part of the left dome of the pleura was closely adherent had ruptured through its covering into the tissues of the neck. The further history of the case made it probable that the communication between the lung and the tissues became occluded by either inflammatory lymph or adhesions, with the subsequent absorption of the air in the subcutaneous tissues. In THE LANCET of Dec. 17th, 1904, p. 1714, Mr. R. D. Attwood records a case of subcutaneous or, as he calls it, surgical emphysema occurring as a complication of pulmonary tuberculosis. The present case appears to me, however, to be of even greater interest.

I am indebted to Mr. Lunn for permission to publish this case.

MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY.

A CASE OF ENCHONDROMA OF THE PATELLA.

(Under the care of Mr. J. H. RAY.)

FOR the notes of the case we are indebted to Dr. Charles Mackey, late senior resident medical officer.

The patient, who was a boy, aged nine years, was admitted to the Manchester Children's Hospital, Pendlebury, for swelling of, and pain in, the left knee. His family history had apparently no bearing on the case. The account of the illness which was given was to the effect that he had been kicked on the left knee some months previously and that since then—namely, during the last three or four months—his mother had noticed a lump forming on his left knee. This swelling gradually became larger.

On admission the patient was found to be a strong, healthy-looking, well-nourished boy. Examination of the left knee revealed signs of distension of the joint cavity with fluid—namely, slight flexion of the joint, contour of the swelling, fluctuation at the sides of the patella, and floating of the patella. There was a hard, non-fluctuant, nodular tumour arising from the outer and upper quadrant of the patella. This swelling was only moveable along with the patella.

Chloroform having been administered, Mr. Ray made a vertical median incision over the anterior aspect of the left knee. At the base of this wound bulging synovial membrane could be seen, which appeared to be enlarged lateral pouches extended in front of the patella, as on incising this the joint cavity was opened and much pale-yellow limpid fluid escaped. A nodular cartilaginous mass three and a half inches in diameter was seen arising from the upper and outer part of the patella. This was removed by bone forceps and gouge. The joint cavity was then irrigated with lotion of biniodide of mercury of strength 1 in 5000 and afterwards with normal saline solution. The wound was then closed with a single row of interrupted silk sutures and dressings were applied. The limb was fixed on a posterior splint with a rectangular foot-piece and also with an external lateral one. The patient left the hospital two months later with a firmly healed wound and a moveable joint. Seven months later he was reported to be quite well.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.

A CASE OF HYDATID DISEASE OF THE KIDNEY.

(Under the care of Dr. R. J. PATON.)

FOR the notes of the case we are indebted to Dr. W. D. Wright, late resident medical officer at the hospital.

A man, aged 50 years, was admitted into the Newport and Monmouthshire Hospital on June 6th, 1904, complaining of having been weak and out of sorts for the last 18 months and also of increasing difficulty of obtaining a satisfactory motion of the bowels. He stated that the cause of all this trouble was a lump in his side. This "lump" was first noticed just below the ribs on the right side about seven or eight years ago; it had gradually increased in size but had caused no pain and no symptoms beyond those already mentioned. The patient's previous history was to the effect that he had had an attack of jaundice about once every two months for the last two or three years. There was, however, no history of hepatic colic. He had never noticed anything wrong with his urine. He had never been abroad and there was no evidence of specific disease. On examination the abdomen was found to be somewhat tumid as a whole, its walls were very fat, and the right side was more prominent than the left. On palpation a large mass could be felt coming from below the right ribs and extending to about one inch from the umbilicus and one and a half inches above the intertubercular plane; it did not quite reach the middle line anywhere. The mass had a cystic feel and in the centre there was a prominent swelling on it which gave distinct fluctuation. The mass moved freely on respiration and the fingers could be tucked between it and the ribs but could not feel its upper limit. With one hand in front and the other behind it could be easily moved to and fro between them. Light percussion gave an absolutely dull note but on heavy percussion the bowel note could be obtained except in the centre. There was no thrill on percussion. There was a band of resonance between this dulness and the liver dulness but no line of bowel running down in front of the mass could be made out. There was nothing abnormal to be found in the urine.

The following operation was performed on June 10th. An incision was made over the most prominent part of the mass and on opening the abdominal cavity was discovered to be a very much enlarged kidney. It was then determined to remove the kidney by the anterior method and the posterior layer of the peritoneum was cut through. In the hope of making the tumour smaller, as there was marked fluctuation, aspiration was resorted to, but no fluid came through the needle which when withdrawn was followed by some colloid material, and on further handling the mass some small hydatid cysts came out. The wound was then at once packed round with sponges and the whole mother cyst was washed out. As the cyst was very adherent posteriorly a small incision was made at right angles to the first one and an assistant kept the anterior and posterior layers of the peritoneum together so as to prevent infection of the general peritoneal cavity. An attempt was made to dissect the cyst from the kidney but this was found to be impossible; the whole kidney was therefore excised, the adhesions being gradually cut through; and lastly the renal vessels and the ureter. The two layers of peritoneum were then sewn together and the peritoneal cavity was shut off; the wound was then well washed out with boric acid lotion, the large cavity was left plugged with gauze, and the abdominal walls were closed. The patient was collapsed when taken back to bed and received an injection of two and a half pints of normal saline solution. On June 11th, under general anæsthesia produced by ethyl chloride, the gauze was removed and an indiarubber

tube was introduced. The patient at that time felt very well and was free from pain. On the 12th he began to show signs of collapse in the afternoon and died in the evening notwithstanding all kinds of stimulation.

Remarks by Dr. WRIGHT.—The case seems to be one of interest as, according to statistics, hydatids of the kidney are comparatively rare. The long duration of the tumour with no symptoms till the last few months and the fact that the patient had never been out of England and Wales are also deserving of attention. I am indebted to Dr. Paton, under whose care the patient was admitted, for permission to publish this report.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

The Occurrence of Bacillus Enteritidis Gaertner in Cows' Milk —Fugent, a New Stain.—A Note on the Use of Acid Media in the Isolation of Bacillus Pestis.—On the Development and Course of the Opsonins in Cases of Acute Lobar Pneumonia.—The Variations in the Opsonic Index in Cases of Tuberculosis.

A MEETING of this society was held on Jan. 17th, Dr. E. KLEIN, Vice-President, being in the chair.

Dr. KLEIN recounted a series of observations showing that in many samples of cows' milk Gaertner's bacillus was present. Amongst 39 samples of milk—derived from various farms situated in different English counties—no fewer than 10, or 25·5 per cent., contained the bacillus. The animals injected with the sediment of 300 cubic centimetres (the sediment of each sample being used for two guinea-pigs, one intraperitoneal and a second subcutaneous) developed a chronic disease consisting in enlargement of the spleen with development of miliary purulent nodules. The nodules contained an abundance of bacilli belonging to one single species, the bacillus enteritidis Gaertner, as was proved by cultures in all media, by staining, by flagella staining, by the agglutination test, and by injection and feeding of guinea-pigs and mice with cultures. It was further experimentally shown that the above chronic disease in the guinea-pig was owing to the relative scarcity of the bacilli in the milk, since by using for injection very minute doses of culture ($\frac{1}{10}$th–$\frac{1}{100}$th part or less of a cubic centimetre of 24-hours-old broth culture) the animals survived and after eight days commenced to develop the miliary nodules of the spleen; large doses ($\frac{1}{10}$th–$\frac{1}{100}$th part of a cubic centimetre of a 24-hours-old broth culture) caused acute septicæmic infection and death. It is disquieting to reflect that such milk if kept in a warm place or in the warm months of the year might be fraught with undesirable consequences to the consumers owing to milk being a good medium for the multiplication of the bacilli and owing to the fluid nature of the milk remaining unaltered during their multiplication.

Mr. F. H. JOSEPH made a communication on a New Stain, "Fugent," the essential ingredients being fuchsin and gentian violet. Saturated alcoholic solutions of methylene blue, gentian violet, and basic fuchsin in the porportions 4 : 5 : 3 were allowed to mature for about one month and were then found to be stable. One part of this stock diluted with two parts of water constituted the stain. Capsules of bacteria were stained in 45 seconds of a light violet tint, the bacteria themselves being of a deep red colour. The stain had given excellent results with bacillus pestis.

The SECRETARY read a communication by Mr. W. C. C. PAKES and Mr. JOSEPH on the Use of Acid Media in the Isolation of Bacillus Pestis. Where bacillus pestis occurred in combination with pneumococcus it was often desirable to exclude the latter and this could best be done by cultivating the mixture in a bouillon with an acidity of + 25 or + 30 (Eyre's method). With this degree of acidity no growths of pneumococcus were obtained, although the acidity might be carried to + 40 before the growth of plague bacillus was inhibited.

Dr. G. G. MACDONALD read a paper on the Course of the Opsonins in Cases of Acute Lobar Pneumonia. The methods used were those described by Wright and by measuring the opsonic value from day to day, using as a control the serum of a normal individual, he found that at the onset of the disease and during the pre-critical rise of temperature the opsonic content of the serum was less than that in normal serum. With the critical defervescence the opsonic content rapidly increased, passing the normal and sometimes reaching an opsonic index of 1·6. In agreement with Wright he found that the body in the normal serum sensitising the pneumococcus was thermolabile, being destroyed in 15 minutes at 60° C.

Dr. W. BULLOCH made a communication on the Variations of the Tuberculous Opsonic Content in the Serum of Patients suffering from Different Forms of Tuberculosis. As a control he first determined the variations in a series of 20 healthy students and 17 hospital nurses. In comparison with his own serum as unity the variations ranged between 0·8 and 1·2. He then detailed the results of the examination of 113 cases of lupus, 19 cases of the medical forms of tubercle, and 10 cases of surgical tuberculosis. Of the medical cases most were patients who were undergoing sanatorium treatment or had been under such treatment. 65 per cent. of the patients suffering from lupus showed an opsonic index below 0·8 and in a general way there was a correspondence between a low opsonic index and a failure to cure by means of the Finsen light. The opsonic index of cases of pulmonary tuberculosis was very variable, figures being often attained considerably above the normal. A large number of cases of "arrest" or "cure" of early pulmonary tuberculosis showed an opsonic index considerably below the normal. Cases of chronic tuberculosis of bone might be above the normal but where the disease was rapidly progressing the index was for the most part found to be low.—Dr. A. E. WRIGHT asked whether Dr. Bulloch had examined the opsonic power of women, for he had found that the opsonic power was very considerably lowered during the period of menstruation. There was also a striking difference in the opsonic reaction in cases of tubercle of the skin and chronic forms of tuberculosis of the lungs. In the former condition, of some 18 cases examined all were below the normal, whereas in the latter the opsonic power might rise to as high as 2, the normal being 1. In periods of ill-health the opsonic power fell to a very striking degree, even so low as 0·15 or 0·3.

CLINICAL SOCIETY OF LONDON.

Three Cases of Acute Ascending Paralysis in the course of Chronic Cystitis.—A Case of Accidental Electrocution causing Extensive Gangrene of all the Extremities.

A MEETING of this society was held on Jan. 13th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Mr. JONATHAN HUTCHINSON, jun., showed a case of Intracranial Resection of the Second Division of the Fifth Nerve two years after operation, with complete relief from symptoms.

Dr. T. J. WALKER (Peterborough) described three cases of Acute Ascending Paralysis in Cases of Chronic Cystitis. He said that he had had in his practice three cases of long-standing chronic cystitis which had terminated fatally by a most rapid acute ascending paralysis. The first case was that of a man who at the age of 15 years injured his urethra by falling astride a rail and who was under treatment for recurrent stricture and chronic cystitis from the age of 25 to 40 years but was able to follow his work. An exacerbation of the chronic cystitis had occurred about a month previous to his final attack for which he was under treatment when in the course of a night the patient felt numbness in the feet and some loss of power in the legs. When seen the next morning there was paresis of the limbs up to the thighs and by that evening paralysis had extended upwards to the arms and thorax, the breathing became embarrassed, and he died 18 hours after the onset of the paralytic symptoms. There was no necropsy. The second case was that of a man who was seen when aged 52 years with a stricture of the urinary meatus for which he had sought relief only when retention and cystitis had made his life intolerable. For the following ten years the patient continued to have cystitis. At the age of 62 years an exacerbation of the chronic cystitis occurred and this had been present for four days but without retention, when in the early morning the patient experienced uncomfortable sensations and some muscular feebleness in the limbs. At mid-day there were distinct signs of paraplegia; on the following day there was considerable progress of the paralysis, and he died 48 hours after the first sign of its

commencement. There was no necropsy. The third case was that of a man, aged 67 years, who had suffered for many years from chronic cystitis and for the previous three months had required catheterisation on account of prostatic disease. He had been confined to his bed for some time, when on getting out he appeared feeble and unsteady. Twelve hours later there were distinct signs of paralysis of the arms and the patient died 18 hours after the first onset of the paralytic symptoms. There was no necropsy. Dr. Walker referred to a case, termed urinary paraplegia by Stanley, of a man admitted into St. Bartholomew's Hospital under Earle with gonorrhœa and phimosis who died three weeks later, 12 hours after paraplegia had set in. Another case occurred under Dr. Saunders in Birmingham. Dr. Walker then discussed the pathology of Landry's paralysis and concluded that the connexion was not a reflex nervous one but an extension of microbes from the bladder to the spinal cord.—Mr. R. CLEMENT LUCAS suggested that the chronic cystitis was of such long standing that the patient might have been affected with some other disease and that the spinal symptoms did not stand in causal relation to the cystitis. The cases were so isolated that he was inclined to think that the paralytic affection had no connexion with the chronic cystitis.—Dr. E. FARQUHAR BUZZARD said that the cases recorded by Dr. Walker were correctly called acute ascending paralysis but doubted whether the term Landry's paralysis should be given them in the absence of more detailed clinical notes and in the absence of post-mortem examinations. He was inclined to believe that they were probably examples of acute ascending meningo-myelitis, which had been shown to occur as the result of infection of the spinal cord by a variety of different organisms.—Mr. W. G. SPENCER said that experimentally animals inoculated with hydrophobia died from an ascending paralysis. This was probably but one of many toxins which might produce ascending paralysis.—Dr. WALKER replied.

Mr. CLEMENT LUCAS reported a case of Accidental Electrocution causing Extensive Gangrene of all the Extremities and Death on the Ninth Day. He said that the patient was a strong, well-built lad, 15½ years of age, who was employed at the London Electric Supply Corporation's station in the Blackfriars-road. The electricity which is generated at Deptford is received at this station at a high potential pressure and is distributed in smaller amounts to the surrounding districts. The maximum pressure is 10,000 volts. On either side of the room are placed barrel-shaped "transformers" about four feet six inches in height and when those on one side are "alive," or in use, those on the other side are "dead," or uncharged. The lad mounted one of those which were "dead" to dust some horizontal slabs of slate above them. When about to descend the iron plates on the soles of his boots caused him to slip on the iron of the "dead" transformer and over-balancing he clutched at the slate but missed it and his right hand came in contact with the main cable carrying the 10,000 volts. A man attracted by the flash and roar of the escaping current looked round and saw the lad rigid between the terminals and the transformer. He ran across and caught him as he fell. The current was not passing through him, it was thought, more than 30 seconds. When laid on the ground the youth was rigid and apparently lifeless. The limbs were burnt, swollen, and stiff. Respiration had ceased and no pulse could be felt. Artificial respiration was immediately started and this, with vigorous rubbing of the body, brought about recovery of consciousness. When taken to the hospital shortly after he showed signs of shock and all his limbs were gangrenous. The right hand was dead white, tightly flexed, and the forearm was supinated, and the arm was in a state of solid œdema up to the shoulder. No pulse could be felt at either wrist or ankle. Below the elbow the arm was purple, above it was crimson and peeling. Both feet were badly burnt, anæsthesia and paralysis extending up four inches above the ankles. There was an everted wound in front of the left axilla as if an escape to the metal of a brace had taken place there. The left hand suffered less and the gangrene did not extend above the wrist. The socks and boots were extensively burnt and the latter were burst through. As on the third day he showed considerable vitality Mr. Lucas amputated the right arm at the shoulder-joint, using a short deltoid flap and the uninjured skin on the inner side of the axilla. The artery was found thrombosed as high as the superior profunda branch. The patient bore this operation well and on the following day had strength enough to sit up in bed. Three days after the amputation and the sixth from the accident it was evident that in spite of antiseptic applications the gangrene of the feet and the legs was spreading and the patient was feeling restless and the temperature had risen to 101·4° F. Mr. Lucas therefore determined to amputate both legs and this was done simultaneously. In the left leg œdema was found extending up among the muscles almost to the knee. This double amputation was borne well and the wound at the shoulder progressed very favourably but two days later symptoms of toxic infection appeared and the patient became very restless, his temperature rising to 104·2°, and on the ninth day after the accident he died. Two men were killed at this station eight years ago by the 10,000 volt current, one having gone to the assistance of the other. The electrical superintendent engineer, Mr. F. H. Baker, gave some interesting observations of his own which Mr. Lucas incorporated in his paper, and Mr. Lucas alluded to several other cases recently reported for the most part from crossing "live" rails on electric railways.—Mr. F. ASPINAL said that, speaking as an electrical engineer, he thought that medical men were frequently handicapped in not knowing what had occurred in their cases of injury from electric currents. He divided the accidents as liable to occur into the following broad classes: (1) from high-tension current when the victim made good contact; (2) from high-tension current with bad contact; (3) from low-tension current with good contact; and (4) from low-tension current with bad contact. He said that all currents above 750 volts should be considered as high tension. The voltage was not the chief factor determining the effect produced by the current but it depended to a far greater extent on a good or bad contact. He pointed out that patients severely burnt by the current did not suffer so much from shock as cases in which there was but little sign of external injury. He described the "cry" which he thought was almost peculiar to these injuries as an inspiratory shriek. He then stated that when an arc was formed metals became volatilised and suggested that the inhalation of these vapours might cause death.—Dr. W. J. HARRIS said that the fatal effects of a current depended not on the voltage but on the horse-power behind. Death might follow a shock from a low voltage current and recovery might occur when a current of enormous voltage had passed through the body. As an instance of the former he quoted the case of a man who was killed at the Fulham baths by a current of 250 volts and of the latter the case of a man who at the Niagara Fall station had the full current pass through the body. The important factor in the cause of death was the amount of current which passed through the body. He agreed with the last speaker that if there was burning of the skin there was, as a rule, less shock.—Mr. SPENCER read, for Dr. S. JELLINCK (Vienna), the following remarks. Electrical currents were harmful according to the tension of the current and the resistance of the human body. A tension of 100 volts demanded precautions, a tension of 200 volts and more might be dangerous, and a tension of 500 volts might be fatal. But the harmful character of the tension was affected by the resistance. A man was killed near Prague by a current of 95 volts when standing barefooted in a mixture of potash and sugar. On the other hand, an electrical employé in Vienna, though much injured, was not killed by a current of 5500 volts. Under resistance there was to be considered the resistance of entry and the resistance of exit. As regards the resistance of entry there was the condition of the clothes, dry or wet, or of the skin. The dry horny palm of a workman might present a resistance of as much as 100,000 ohms; soft, moist skin, also lesions of the skin, had a very much diminished resistance; whilst the resistance of the mucous membrane of the mouth fell below 1000 ohms. The resistance of exit depended upon the nature of the ground; also, as it was usually the feet which connect with the ground, the covering of the feet. An electrical employé might come in contact with currents of high tension and do so with impunity if the feet were covered with non-conducting material. In the case of the workman above mentioned standing barefooted in potash and sugar the resistance of exit was very small indeed. The condition of the ground was most important; in private houses and some mills the ground formed a good protection; mineral acid factories and coal mines, on the other hand, especially favoured the occurrence of an accident. In making rules for the prevention of accidents rooms and shops containing electrical installations should be distinguished, according to

the tension of the current and the nature of the ground, into "the safe" and "the dangerous."—Mr. LUCAS replied.

OBSTETRICAL SOCIETY OF LONDON.

Causation of Puerperal Infections.—Vaginal Hysterectomy in the Puerperium.

A MEETING of this society was held on Jan. 4th, Dr. EDWARD MALINS, the President, being in the chair.

Mr. A. G. R. FOULERTON and Dr. W. F. VICTOR BONNEY communicated a paper entitled "An Investigation into the Causation of Puerperal Infections." They said that they had examined the contents of the uterus: (1) in 12 cases in which the puerperium was normal, examination being made from the third to the tenth day after normal labour; and (2) in 54 cases of either miscarriage or labour at full term in which fever occurred. They had also made a bacteriological examination of the cervical secretion in 30 non-pregnant women who were suffering from vaginal discharge. The method of obtaining the contents of the uterus for examination was as follows. A large glass tube, of the shape and dimensions of an intra-uterine douche tube, served as a sheath for a wire with a plug of sterilised cotton-wool at its extremity. The upper end of the glass tube was covered with a cap of cotton-wool. After sterilisation of the apparatus the cap of cotton-wool was dipped in a mixture of melted paraffin and thymol. After the glass tube had been introduced into the lower part of the uterus the cotton-wool cap was withdrawn by means of a piece of string, the wire carrying the sterilised plug of cotton-wool was then pushed up to the fundus, and a sample of the contents of the uterus was thus obtained. The following was the result of the bacteriological examinations. Firstly, as regards the contents of the uterus in the normal puerperium. In all 12 cases examined the contents of the uterus proved sterile of bacteria. Others had obtained similar results, but others, again, had found certain bacteria in the uterus in the course of normal puerperia. Vogel believed that towards the end of the puerperium certain bacteria might invade the uterus without producing any symptoms. Mr. Foulerton and Dr. Bonney said that the matter could not be regarded as determined one way or another. The series of cases examined by them was too limited to be taken as a proof of the sterility of the uterus in the normal puerperium but they considered that the weight of previously published evidence was in favour of sterility. Secondly, as regards the contents of the uterus in cases of puerperal fever and in fever after miscarriage. 54 cases in all were examined—six of miscarriage and 48 of labour at full term. Clinically the cases could be separated into three groups—A. Cases with severe symptoms, terminating in death. B. Cases with severe symptoms, terminating in recovery. C. Slight fever cases (i.e., with a temperature not exceeding 102° F.). Out of these 54 cases the uterus was apparently sterile of bacteria in 15; bacteria of one kind or another were found in the remaining 39.

	Sterile.	Bacteria found.	Total.
Group A.—Miscarriage	—	.....	2
Labour at full term	—	.....	12——14
Group B.—Miscarriage	—	.....	4
Labour at full term	5	.....	17——26
Group C.	10	.....	4——14
Total			54

The bacteria found were:—

	Cases.	Total.
Streptococci, in pure culture	10	
,, with other bacteria	15	25
Micrococcus pneumoniæ, in pure culture	1	
,, ,, with other bacteria	3	
? ,, ,, (not fully identified)	2	6
Staphylococcus pyogenes aureus		1
,, ,, albus		3
A diplococcus (–Gram), not the gonococcus		2
A diphtheroid bacillus		2
Total		39

An examination of the cervical secretion in non-pregnant women with vaginal discharge was made in 30 cases with the following results. Cultures of various bacteria were obtained in 16, bacteria were demonstrated by microscopic examination but attempts at culture failed in three, attempts at culture failed and no bacteria were seen on microscopic examination in nine, and attempts at culture failed and no microscopic examination was made in two; total, 30. Amongst the bacteria found in 16 cases were staphylococcus pyogenes aureus, staphylococcus pyogenes albus, micrococcus gonorrhœæ, bacillus coli communis, a "diphtheroid" bacillus, a diplococcus (– Gram, but not micrococcus gonorrhœæ), and an encapsulated diplococcus (+ Gram ? micrococcus pneumoniæ). The general results of the bacteriological examination which had been made were as follows: (1) streptococci were present in the uterus in 25 out of 39 cases in which cultures from the contents of the uterus were obtained; (2) streptococci were present in the vagina in two cases out of 17 in which the contents of the uterus were apparently sterile of bacteria; (3) streptococci were present in the uterus in 25 out of 40 cases of severe fever, and in the vaginal secretion in two out of five similar cases in which the contents of the uterus were sterile of bacteria; (4) out of 14 cases of "slight" fever the contents of the uterus were sterile of bacteria in ten, and in four cultures of bacteria were obtained but not a streptococcus; (5) of the 15 cases in which the contents of the uterus were sterile of bacteria a marked proportion were primiparæ presenting considerable lacerations of the cervix or perineum; (6) the presence of micrococcus pneumoniæ was proved in four of the cases and in two others it was probably present; (7) in the present series the absence of micrococcus gonorrhœæ and anaerobic organisms was noticeable; and (8) in the series of cases in which the cervical secretion was examined proof was obtained of the presence in the cervical canal of non-pregnant women of bacteria which had also been found in puerperal infections of the uterus but in no case were streptococci found. Mr. Foulerton and Dr. Bonney summarised the pathology of puerperal infections as follows: 1. Puerperal fevers may be caused by (*a*) primary infection of lacerations of the vaginal walls or perineal tissues (with secondary infection of the uterus sometimes); and (*b*) primary infection of the contents of the uterus or of the placental site. 2. The processes concerned in the production of puerperal fevers might be classified as: (*a*) primary, vaginal, or perineal infection (local infection + toxæmia; local infection + toxæmia + general infection); and (*b*) primary infection of the uterus (local infection + toxæmia; local infection + toxæmia + general infection). Their general conclusions were as follows: (1) puerperal fever when bacteriological proof of the nature of the infection was wanting should be treated as being due to streptococcic infection; (2) active curetting of the uterus in puerperal infections was not to be advised; (3) the most satisfactory treatment for streptococcic infections of the uterus was comprised in the administration of an appropriate antistreptococcic serum, and digital exploration and clearing out of the contents of the uterus, followed by intra-uterine douches; (4) the fever following a streptococcic infection of the uterus might be transient and might subside within 48 hours without any special treatment—a fact to be remembered when dealing with the conveyance of infection; (5) autogenetic infection was probably sometimes a cause of puerperal fevers, but the use of vaginal douching before labour with the view of obtaining asepsis was not advisable; (6) in this series of cases bacterial invasion of the uterus had always been marked by severe symptoms with abrupt rise of temperature to 102° or higher; and (7) in the majority of the cases in which the contents of the uterus were sterile and there were severe lacerations of the cervix or perineum the symptoms were very much less severe and the temperature did not rise to above 102°—Dr. P. HORROCKS said that the fact that the contents of the uterus were found sterile in every instance where the puerperium was normal constituted an argument against interference in labour, such as routine syringing, vaginal or uterine. He remarked on the absence of any distinction between septicæmia and sapræmia in the classification adopted by Mr. Foulerton and Dr. Bonney who had taken the amount of fever as the sole guide to the severity of the illness. The presence or absence of an offensive discharge was of the greatest moment. In the grave form or puerperal septicæmia proper the lochia were not offensive but were scanty or suppressed and sweet; whereas in sapræmia the

lochia were not scanty but were offensive, and when the offending products were cleared out of the uterus the temperature, as a rule, rapidly fell to normal and the patient recovered. Doubtless in some cases the patient suffered from a mixed sepsis and then the clearing-out process was not followed by the improvement usually expected.—Dr. AMAND J. M. ROUTH agreed that streptococci were the most frequent cause of the severer forms of puerperal fever. He had also found many cases of fever where the contents of the uterus were proved to be sterile. Was it possible that some of these were infected by moulds, yeasts, or forms of streptothrix, all of which might cause diseases in women? He had little faith in antistreptococcic serum, having seen only one case recover by its use, and had much more reliance on tincture of perchloride of iron in 20- or 30-drop doses every two or three hours.—Dr. A. W. SIKES said that he had been much impressed with the good results obtained by early digital exploration followed by intra-uterine douching, but he considered that the results from antistreptococcic serum were often unsatisfactory.—Dr. R. BOXALL said that as a rule active curetting of the uterus was not to be recommended. As regards the use of antistreptococcic serum he still preserved an open mind. There were many disadvantages in its use and he had seen considerable danger follow but never appreciable improvement. Inasmuch as it had been proved that at the time of labour the vagina might contain pathogenic organisms, the presence of which was often unsuspected and difficult to detect, he adhered to the practice of douching the vagina early in the course of labour with a view to preventing the possibility of autogenetic infection on the same principle that he took measures to disinfect and render sterile the skin of the abdomen before performing laparotomy.—Dr. ARNOLD W. W. LEA said that he had carried out a similar investigation in 18 consecutive cases of severe puerperal infection and with much the same result as Mr. Foulerton and Dr. Bonney. He had also examined the blood in 14 of these cases. In two cases only were streptococci discovered and both ended fatally. He believed that in many cases of fatal infection the blood remained free from streptococci. In these cases the infection was mainly lymphatic and the blood remained sterile. This was especially frequent in the acute and rapidly fatal types and might account for the frequent failure of the serum treatment; the streptococci developed in the lymphatic vessels and tissues of the pelvis, producing toxæmia, but the serum was powerless to act directly upon them as it could only be injected into the blood stream.—Mr. FOULERTON, in reply, explained that most of the cases which were clinically included under the term "sapræmia" fell into the pathological category of local infection + toxæmia, occasionally with general infection superadded. He thought it unlikely that micrococcus gonorrhœæ, yeast parasites, or streptothrix had been overlooked in any of their cases. Too much importance had, he felt sure, been attributed to micrococcus gonorrhœæ as a cause of puerperal infection. Both he and Dr. Bonney held very strongly that an immense proportion of the cases of streptococcic puerperal fever was avoidable and the more nearly the conditions of general obstetrical practice approximated to those of a properly conducted lying-in hospital the less frequent would streptococcic infection be and the lower the mortality from puerperal fever. While recognising the difficulties associated with serum treatment, there could not be any doubt in his mind that an antistreptococcic serum did act as a specific cure in some cases of puerperal fever.

Dr. LEA read a paper on Vaginal Hysterectomy in the Puerperium for Sepsis (?) due to Suppuration of a Myoma. He said that curetting was performed without beneficial result. Pyrexia continued with occasional rigors but there was no peritonitis. The uterus was removed by means of ligatures per vaginam seven weeks after delivery. Both uterine appendages and a portion of omentum, all of which were implicated, were removed at the same time. A glass vaginal drainage-tube was used. The temperature fell to normal within a week and complete recovery followed. Pus from the tumour showed streptococci and bacillus coli communis.

EDINBURGH OBSTETRICAL SOCIETY.

Climacteric Hæmorrhage.—Bier's Hyperæmic Treatment.—Fatal Prolapsus Uteri.

A MEETING of this society was held on Jan. 11th, Professor A. R. SIMPSON, Vice-President, being in the chair.

Dr. A. H. FREELAND BARBOUR read a paper on Climacteric Hæmorrhage due to Sclerosis of the Uterine Vessels. Hæmorrhage at the climacteric was often the sign of malignant disease and should be investigated early, as the only hope lay in early operation. Once pain or fœtid discharge was present the chance of a successful operation was lost. Hæmorrhage after abortion might occur at the climacteric as at any other time. The following case threw light on another cause which had not received sufficient attention. The patient, aged 46 years, had been a healthy woman all her life till four and a half months before admission to hospital. There were no evidence of hereditary or constitutional disease and no history of alcoholism. She had had nine full-time children and two miscarriages after her fourth and fifth children; her last child was born when she was 43 years old. Her menses were always regular and never excessive till 19 weeks before her admission to hospital when a severe hæmorrhage began on the day of her expected period and continued for 16 weeks. The amount varied: sometimes only a little passed, at others severe flooding took place which confined her to bed. She consulted a medical man who gave her medicine which evidently stopped the hæmorrhage for three weeks before admission. On admission she was anæmic and cachectic, her appearance suggesting malignant disease. The pulse was small and feeble; no thickening of the radial or other arteries was evident. The uterus was enlarged, irregular in shape, and about four inches in vertical mensurement. As the patient was not in a fit state to stand a preliminary curetting it was decided to perform hysterectomy as soon as she was fit for it. Owing to the size of the uterus the abdominal route was chosen and panhysterectomy was done, as malignant disease of the body was diagnosed. The patient had phlebitis after the operation but she did well and left the hospital seven weeks later. On examining the specimen a plexus of wide vessels with markedly thickened walls was found in each broad ligament; the vessels anastomosed freely with each other. One of these vessels measured 0·5 centimetre in diameter. The walls of the uterus measured 2·5 centimetres in thickness in the middle of the body; from the cut surface the vessels stood out prominently and had apparently thickened walls; they were most marked in the outer third. The mucosa was smooth and healthy-looking and measured one millimetre in thickness. The uterine glands were normal. The uterine artery was very little changed from normal. The first case recorded resembling this one was by Pichevin and Petit in 1895; two years later Reinecke reported four cases of hysterectomy, all showing changes in the vessels. Bland-Sutton in 1899 described a similar condition in three cases and Pozzi two cases in the same year. Simmonds in 1901 performed hysterectomy for continuous hæmorrhage resisting all treatment, where the only pathological change found was marked sclerosis of the uterine artery. Marisani in 1901 had a case which he described as angio-sclerosis and regarded it as a manifestation of syphilis. This condition was different from "apoplexia uteri" occurring after the menopause, where calcareous and senile degeneration of the uterine arteries had been found. It could not be diagnosed during life, though by curetting malignant disease or retained products of conception could be excluded. The only treatment was hysterectomy; ergotin and curetting did not touch the affected vessels.—Professor SIMPSON, Dr. JESSIE M. MACGREGOR, and Dr. F. W. N. HAULTAIN discussed the paper.

Dr. E. W. SCOTT CARMICHAEL read a paper on the Application of Bier's Hyperæmic Treatment to Gynæcological Disease. Bier found by experimental and clinical observations that hyperæmia induced in a diseased part brought about distinct changes, salutary or otherwise, in the tissues according to the pathological process present. An acute hyperæmia was produced by exposing the part of the body to a high temperature, thereby increasing the rate of the flow of blood to it by dilating the capillaries; a passive congestion was induced by obstructing the venous return, thereby producing more or less stasis and congestion in the blood-vessels. It was only the former that was applicable to pelvi-abdominal conditions. Bier found that an acute hyperæmia produced in a limb by exposing it in some form of apparatus to hot dry air had a bactericidal action; it also had the power of alleviating pain, of promoting absorption, of loosening adhesions, and of stimulating general nutrition and regenerative processes. In all forms of affections of the joints—gonorrhœal, rheumatic, or septic—it soothed pain and

markedly promoted absorption and loosened adhesions. Martin applied this treatment to inflammations of the pelvic organs, especially when there was much exudation, and in these cases it had superseded practically every other method of treatment, such as ichthyol, glycerine, iodine, &c. If there was a tendency to suppuration the hot-air treatment hastened it rapidly, while in the chronic forms it favoured absorption. Great relief was obtained locally and the general condition rapidly improved.

Mr. G. F. BARBOUR SIMPSON read a paper on a case of Fatal Complete Irreducible Prolapsus Uteri, the specimen of which was shown and illustrated with photographs. The patient was 42 years of age, a laundress by occupation, and was admitted into hospital in September last complaining of falling down of the womb of several months' duration. There was a mass projecting from the vulva five inches long and four inches wide and constricted at its base by the vulva. The whole mass was extremely sensitive on manipulation. A finger in the rectum detected the fundus of the uterus near the vulva; a catheter passed into the bladder showed that the whole organ was external to the vulva. Reposition was twice attempted, once under chloroform, but without success. The patient died a fortnight after admission with symptoms of general septicæmia. It was remarkable that she suffered apparently little inconvenience till a fortnight before admission. Post mortem an abscess cavity was discovered extending from the utero-vesical pouch upwards into the peritoneal cavity for a distance of eight inches; the intestines were closely matted together with numerous adhesions as the result of chronic peritonitis. These adhesions had rendered any attempts at reposition impossible.—Dr. HAULTAIN and Professor SIMPSON discussed the paper.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 9th, Dr. A. Bronner being in the chair.—The following cases and pathological specimens were shown:—Dr. J. Gordon Sharp: Urali Plant and various Poisons and Poisoned Arrows.—Dr. J. B. Hellier (with Dr. J. A. Hargreaves): Placenta from a case of Premature Labour. Dr. Douglas Seaton: Dermoid Cyst of the Ovary.—Mr. H. Littlewood: (1) Excision of the Elbow for Old Dislocation six weeks after operation; and (2) Intussusception, entero-ileo-cæcal variety.—Mr. H. Secker Walker: (1) A case of High Myopia, – 35 D., with Choroidal Changes; (2) a case of Radical Mastoid Operation complicated by Sinus Phlebitis; and (3) a case of Chronic Otorrhœa treated by the Mastoid Operation with subsequent skin-grafting.—Dr. A. E. Porter: Some Pathological Specimens from the Slaughter-house.—Dr. A. G. Barrs: A case of Malarial Anæmia with Enlargement of the Liver and the Spleen.—Dr. Carlton Oldfield: Specimen of Oxalate Calculus removed by Nephrolithotomy.—Dr. E. F. Trevelyan: (1) A case of Aphasia nine months after its onset; (2) a case of Tabes Dorsalis with exaggerated knee-jerks; (3) a doubtful case of Multiple Sclerosis in a woman; (4) a case of Muscular Atrophy in a girl, aged 17 years; (5) a case of Limited Muscular Atrophy in a man, aged 73 years; (6) two cases of Ulnar Paralysis; (7) a Brain from a case of acute febrile pulmonary tuberculosis in a lad aged 19 years, in whom fits occurred during the last two weeks of life; and (8) a specimen of Blood from a case of Myelogenous Leukæmia in a man, aged 24 years.—Mr. R. Lawford Knaggs: (1) Epithelioma of the Bladder; and (2) (with Dr. C. M. Chadwick) Malignant Ulcer of the Rectum fungating into the peritoneum and into the bladder.—Dr. L. A. Rowden: Case of Hyperæmia of the Hands and the Face; diagnosis?—Mr. J. Basil Hall read notes of a case of Spasmodic Torticollis treated by resection of the spinal accessory and posterior cervical nerves. The patient, a quarryman, aged 37 years, had suffered from otorrhœa on the right side 20 years previously. The otorrhœa ceased completely eight years ago. He then had a slight tremor of the head. One year ago tinnitus commenced and he became quite deaf in the right ear. Soon after spasmodic torticollis appeared which had steadily grown more violent until he became quite incapacitated. When first seen he was suffering severely from spasm of the right sterno-mastoid and the left retrocollic muscles. The right retrocollic muscles were also involved but to a lesser extent. The movements, which were very violent, abated when he lay down and ceased altogether during sleep. The affected muscles were much hypertrophied. There was no ocular defect. The right tympanic membrane was practically destroyed. On Nov. 12th, 1903, an inch of the right spinal accessory and the first, second, and third posterior cervical nerves of the left side were excised. The patient's condition was much improved but a good deal of spasm remained in the right retrocollic muscles. He remained for two months under observation when, as no further improvement took place, the first, second, and third posterior cervical nerves on the right side were excised. The patient left the hospital at the end of three weeks. There was no spasm but there was a fine tremor of the head. He was last seen 12 months after the first operation. There had been no return of the spasm. He could hold his neck erect and extend it on the trunk. The tremor remained.—Mr. B. G. A. Moynihan discussed the paper and referred to four cases in which he had performed a similar operation.—Mr. Hall replied.—Mr. W. C. Mayo drew attention to the difficulties in the administration of anæsthetics in abdominal operations due to the nervous reflexes caused by the surgeon's manipulations. When the patient had suffered much abdominal pain these reflexes were more difficult to overcome. For 18 months he had given chloretone (from 15 to 20 grains) half an hour before commencing the operation, and had found that patients took the anæsthetic better and more quickly with fewer after-effects. He drew attention to the difference of opinion as to the best anæsthetic in these cases. He had obtained good results with a mixture of ethyl chloride, 20 per cent.; chloroform, 40 per cent.; and ether, 40 per cent., given on a towel as chloroform, only faster, until the corneal reflex had nearly gone, and then changing to ether in a Clover's inhaler until the breathing was deep and regular, the pupils fairly dilated, and the muscles of the lower jaw quite relaxed. The patient was now ready for operation, for which relaxation of the abdominal muscles was the chief point. When the abdomen had been opened it was often a help to the surgeon to change to chloroform. With regard to the ethyl-chloride-chloroform-ether mixture mentioned above most patients went quietly into unconsciousness in from one and a half to six minutes with less struggling and excitement than with chloroform. There was no cyanosis or excess of mucus, the breathing was quiet and regular, and the colour was good. The anæsthesia was inclined to be of a light character. Attention was also drawn to the necessity of attending to oral sepsis for some days before the operation, thereby avoiding pneumonia; and also to the combating of shock by the use of liquor strychninæ and oxygen administered from a Hewitt's gas-bag.—Mr. Littlewood, Dr. W. McGregor Young, Mr. Moynihan, Mr. E. Ward, Mr. Hall, and Dr. Bronner discussed the paper and Mr. Mayo replied.

BRITISH GYNÆCOLOGICAL SOCIETY.—At the annual general meeting on Jan. 12th, Professor John W. Taylor, the President, being in the chair, the following officers were elected for the current year:—Honorary President: Dr. R. Barnes. President: Dr. William Alexander. Vice-Presidents: Mr. E. Stanmore Bishop, Dr. Bedford Fenwick, Mr. F. Bowreman Jessett, Dr. K. P. Ranken Lyle, Sir Arthur V. Macan, Dr. J. J. Macan, Dr. H. Macaughton-Jones, Dr. Christopher Martin, Dr. J. A. Mansell Moullin, Dr. Thomas Oliver, Dr. Heywood Smith, and Mr. W. Dunnett Spanton. Honorary treasurer: Dr. W. H. Slimon. Council: Dr. T. Gelston Atkins, Dr. N. T. Brewis, Mr. G. Roe Carter, Sir J. Halliday Croom, Dr. William Duncan, Dr. F. Edge, Dr. George Elder, Dr. T. J. English, Dr. J. H. Ferguson, Dr. Clement Godson, Dr. Arthur Helme, Dr. R. J. Kinkead, Dr. J. Macpherson Lawrie, Dr. Samuel Lloyd, Mr. John Padman, Dr. Ernesto Pestalozza, Dr. J. J. Redfern, Mr. Charles Ryall, Dr. R. T. Smith, Dr. J. H. Swanton, Dr. J. W. Taylor, Dr. W. Travers, Mr. H. F. Vaughan-Jackson, and Dr. Hugh Woods. Editor of the Journal: Dr. Macan. Assistant editor: Dr. Swanton. Honorary secretaries: Dr. Sol Jervois Aarons and Dr. Smallwood Savage. Auditors: Dr. C. H. Bennett and Dr. F. A. Purcell. Trustees of the property of the society: Dr. G. Granville Bantock, Dr. R. S. Fancourt Barnes, and Dr. Clement Godson.—Dr. J. Inglis Parsons showed a Double Pyosalpinx symmetrically enlarged on each side and removed without any rupture. Even in the presence of dense adhesions, by taking time and separating the adhesions from behind and below, he found it often possible to isolate and to remove both tubes without rupture.—The President then delivered his valedictory address. After reviewing the progress of gynæcology during the last year and alluding to the loss which the profession had sustained from the deaths of many eminent men, he

mentioned that his association with the society, of which he became a Foundation Fellow more than 20 years ago, was coterminous with his work as an operating gynæcologist. During that time he had performed 1291 operations with only 85 deaths, a total mortality of 6·5 per cent. But many of the deaths were unavoidable or only indirectly due to operation. One was from apoplexy; four were cases of acute perforative peritonitis, one of which was a Cæsarean section with a child now still alive; four were moribund cases of intestinal obstruction; and 22 patients died rather from malignant disease than from the results of the operation. He had, however, to regret some early cases of sepsis and one case of death from secondary hæmorrhage. Some cases also of myomata operated on by the modified clamp operation might no doubt have been saved by more modern methods. Taught by experience, his best work had been in the last five or six years which, including a fair proportion of grave cases, showed a mortality of only 1 per cent. His experience extended over days of ignorance when hardly anything was left undone that favoured infection, over days of empirical asepsis, and the more recent ones enriched by our acquired knowledge. He attributed the greatest advantage to the recognition of the efficiency of heat in sterilisation, to the disinfection of the hands by potassium permanganate supplemented by spirit and biniodide of mercury, not only before operation but after every dangerous contact, and to the substitution of fine interlocking chain sutures of silk for ligature *en masse*. Fine silk he had found to be in time as perfectly absorbed as catgut. Pelvic hæmatocele, the so-called broad ligament hæmatoma, formerly the commonest complication of post-operative convalescence, though attributed to the use of a sharp needle, he had not found to have that origin. It was more probably due to ulcerative erosion of the vessels owing to infection from the thick silk used in tying the pedicle. The removal of the appendages for myoma he had gradually, though not entirely, abandoned in favour of abdominal or vaginal hysterectomy, and he now seldom performed that operation for gonorrhœal tubal disease, preferring systematic treatment with biniodide of mercury, which, even in cases demanding interference, when combined with the evacuation of the sacs and drainage, was generally better than the old operation. In inguinal cœliotomy by Reclus's method, by tying off a small amount of mesentery at each side of the spigot of glass at the original operation, he found that the subsequent division of the intestine was practically bloodless and not accompanied by arterial hæmorrhage, as otherwise was too often the case. In conservative operations some of his greatest successes had been the separation of adnexal adhesions to the intestines causing obstruction; hysteropexy and ventro-suspension were also conservative, but he had found conservative operations on the appendages disappointing. Simple prolapse of the ovary due to retro-displacement was best treated by shortening the round ligaments without opening the peritoneum. Disliking all forms of fixation he had abandoned anterior colpotomy, but had become more and more attracted by posterior colpotomy, the advantages of which were not to be overlooked even in virgins or children. The essential point in the operation, after the disinfection of the vagina, was free drainage with iodoform gauze. Vaginal ovariotomy and vaginal enucleation demanded increasing consideration.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held on Jan. 6th, Mr. C. M. Tuke, the President, being in the chair.—Dr. Z. Mennell showed a typical case of Acromegaly in a man, aged 42 years. In 1883 he enlisted in the army and his measurements were as follows: weight, 10½ stones; height, 5 feet 10½ inches; chest, 37 inches; and circumference of the head, 21 inches. From 1887 to 1902 he had constantly to get larger boots, hats, gloves, and clothing, when latterly he could not get stock sizes large enough and his measurements at present were: weight, 19 stones 3 pounds; height, 6 feet 1 inch; chest, 47 inches; and head, 25½ inches—which measurements had remained about the same during the past two years. His personal health was good, his only subjective symptom being occipital headache, with depression of spirits.—Dr. A. Morison showed: 1. A case of Old-standing Mitral Stenosis with Persistent Choreic Movements in a man, aged 76 years. At the age of 14 years he first had an attack of rheumatic fever, followed by clonic convulsive movements of the right arm, and when 30 years old he had a second attack which was followed by a similar affection of the left arm. 2. A man, aged 51 years, with a "Renal Heart," associated with Granular Contracted Kidney.—Dr. J. B. Ball exhibited a man, aged 52 years, with Tonsillar Disease of about six months' standing, commencing with considerable enlargement of the right tonsil and surrounding tissues, which eventually suppurated and discharged a quantity of necrosed débris, leaving a large ragged cavity. Although there was no history of syphilis it was considered to be gummatous in nature and the case seemed to improve under antisyphilitic treatment at first. A small portion of the tissue had lately been examined microscopically showing the disease to be of a malignant type. Dr. Ball considered it to be a case of combined syphilitic and malignant disease.—Dr. A. Gaster suggested that the patient should be treated with large doses of mercury before accepting the case as one of pure epithelioma.—Mr. G. Pernet also suggested a course of mercury under strict observation and apart from iodide of potassium.—Mr. R. W. Lloyd said that *local* mercurial treatment combined with internal administration of antisyphilitic remedies might prove useful.—Mr. J. T. Armstrong did not agree with the mercurial treatment, taking into consideration the microscopical report, and suggested antiseptic applications locally.—Dr. Ball briefly replied.—Mr. John Garrett brought before the notice of the society a case of Granuloma Annulare which occurred on the back of the right hand of a girl. It commenced as a papular rash about six months previously, the papules disappearing and leaving an indurated elevated margin around the centre which regained its normal condition.—Dr. T. Colcott Fox said that the disease was a very rare one, the etiology of which was unknown.—Mr. Pernet was of opinion that this case was not one of granuloma annulare and showed microscopical sections of the latter disease.—Mr. D. J. Armour showed a female, aged 26 years, upon whom he had operated for a Bilateral Ankylosis of the Jaw. Both condyles were found to be fused with the zygoma, forming a solid mass of bone of ivory-like hardness. The zygoma just in front of, and behind, the tuberosity and the neck of the jaw were cut through on each side and the jaw was subsequently moved several times under an anæsthetic. The patient could now separate her jaw easily and well and was able to eat solid food for the first time in her life.—Mr. Armour also showed a specimen of a Polycystic Kidney which he removed from a woman, aged 29 years, who made an uninterrupted recovery. Since the operation she had improved in health and was passing a normal amount of urine.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on Jan. 9th in the Faculty Hall, Professor R. Muir, the President, being in the chair.—Dr. T. K. Dalziel and Dr. J. Walker Downie described a case of Removal of the Pharynx and a Portion of the Larynx on account of Epithelioma. The growth was a very extensive one, involving a considerable area of the pharynx in its whole circumference, the posterior wall of the larynx, and the orifice of the glottis; there was also a large mass of infected glands in the right side of the neck. The operation was performed without hope of cure but for the alleviation of the miserable state of the patient and proved much more formidable than had been anticipated. The whole growth was removed. The œsophagus was then detached from the trachea for a distance sufficient to allow of the end being brought out and was stitched to the skin of the side of the neck for the use of the stomach tube. The patient made an uninterrupted recovery. The tracheotomy tube, which had been inserted before the main operation was started, was removed after three and a half weeks. The only trouble met with was the constant trickling of saliva from the mouth, there being no other way of escape for it; but this stopped after two months, the salivary glands having ceased to perform their function. All food necessarily was taken through the stomach tube; it did not affect the secretion of saliva while the glands were active. Since the operation the patient had nursed her husband and her son through severe illnesses, but now, after six months of happiness and usefulness, she is dying from pressure on the air passages by a mass of glands in the right side of the root of the neck. The anæsthetic used at the operation was chloroform.—Dr. John H. Teacher and Dr. G. Burnside Buchanan showed a specimen of Multiple Carcinomata of the Intestines. The primary tumour appeared to be that situated in the rectum; there were about 20 nodules of various sizes scattered along the whole length of the great intestine and a group in the

lower part of the small intestine; beside the latter there was considerable infiltration of the mesentery. The secondary nodules were situated in the submucous layer of the gut. The course of spread could not be traced.—Dr. Henry Rutherfurd showed a specimen of Multiple Carcinoma of the Great Intestine. A tumour (carcinoma) of the rectum had been removed two years previously.—Dr. D. N. Knox showed the Sac of an Encysted Infantile Hernia and read notes of two such cases. The specimen was taken from a patient, aged 72 years; the hernia had been in existence for many years and was as large as a cocoanut. The other case occurred in a child.—Dr. J. K. Kelly showed a number of specimens of Uterine Myomata and Ovarian Dermoids and read short notes of the cases.—Dr. A. Napier and Dr. John Anderson gave an account of a case of Patency of the Interventricular Septum. The orifice occupied the undefended area of the septum and measured about an inch in diameter. In spite of this considerable defect the patient enjoyed perfect health up to her seventeenth year, then manifested signs of cardiac weakness but recovered and remained well until the birth of her first child at the age of 27 years. She died soon after with symptoms suggestive of aortic incompetence.—Dr. Napier and Dr. Anderson also described a case of Tuberculous Meningitis in an adult which simulated enteric fever.

DERMATOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Jan. 11th, Mr. Malcolm A. Morris being in the chair.—The following were among the cases exhibited:—Mr. Morris showed a young woman, 19 years of age, who had been troubled three years ago with Warts on the Backs of the Hands. These had been removed by means of the x rays and one year later telangiectases had begun to make their appearance on the situations which had been exposed and these were still increasing. The exhibitor commented on the unusually long latent period between the exposure and the development of the evil effects.—Dr. T. Colcott Fox showed a young man who had travelled all over the world and lived in almost every climate and who had first noticed four years ago a red spot on the right shin. This had enlarged very slowly without giving rise to any special symptoms and had been followed in May, 1904, by the appearance of several other spots on the same leg and the other leg and quite recently on the arm. The patches were flat and a little scaly, the centre was pale and obviously atrophic, and the margin was a little reddened. Careful examination had shown that there were no anomalies of sensation and Dr. Fox thought that there need be no apprehension of any serious disease and also that the eruption probably belonged to the class of so-called idiopathic atrophies to one of which the name of "erythromelie" had been given.—Dr. E. G. Graham Little showed a man with Widespread Lupoid Eruption on the Face affecting the whole of the nose, with patches on both cheeks and both ears. The disease had commenced six years previously with a blow on the nose. The patches were much thickened and obviously transparent and granulomatous looking, so that he thought some might consider it to be a true lupus vulgaris. A section of the diseased area was also exhibited in order to aid in the diagnosis. The opinion was generally held that the disease was lupus erythematosus.—Dr. Sale-Barker (introduced) showed an interesting group of children in whom Ringworm of the Scalp had been treated by the x rays. The method that he used was to measure the current actually passing between the terminals of the vacuum tube and to use a constant spark gap. He then gave the children rather long exposures and found that usually two were sufficient to cause epilation. He pointed out that in a case in which he had caused a total defluvium for disseminated ringworm and in which there must have been some overlapping of the exposed areas no dermatitis had resulted.—A considerable discussion took place with regard to these cases and the general opinion seemed to be that the method was now firmly established as the speediest treatment for ringworm of the head. Many members had used it in numerous instances and no member reported any untoward result, though all agreed that the greatest care must be taken.

SANATORIUMS FOR TUBERCULOSIS.—At a meeting of the board of delegates of the Hospital Saturday Fund Association, held at the offices, Gray's Inn-road, London, W.C., it was decided on the motion of Mr. Dear that a sum of £500 should be granted from the 1904 collections to the National Sanatorium Committee towards the erection of sanatoriums for tuberculous patients on a site secured near Hastings.

Reviews and Notices of Books.

Morphology and Anthropology: A Handbook for Students. By W. L. H. DUCKWORTH. Cambridge University Press. 1904. Pp. 564. Price 15*s.* net.

Studies from the Anthropological Laboratory of the Anatomy School, Cambridge. By the same Author. Cambridge University Press. 1904. Pp. 291. Price 10*s.* net.

THE first of the two volumes which we notice here is published at a not inappropriate time. The recent establishment of a Board of Human Anatomy and Morphology in the University of London, dealing with regulations as to the inclusion of this subject in the honours list of the University, should produce, if it has not already produced, some quickening of the really scientific study of man as opposed to the older "professional" anatomy necessary for the acquirement of medical and surgical degrees and qualifications. For the beginner in this branch of biology, armed with a general knowledge of comparative anatomy, Mr. Duckworth's handbook should prove useful. This general armature is necessary but it is not unreasonable for the author to assume its existence, for no person undertakes the study of man at present without a previous grounding in the essentials of biology. Mr. Duckworth, however, starts with a brief reference to mammals in general and then takes the reader more and more into his confidence as he advances upwards in climbing with them the tree of mammalian life: until after a longer account of the lemurs and a still more prolonged statement of the anatomical characters of the monkeys he expands into a detailed *résumé* of the anatomical characters of the species *homo sapiens* and of the several races into which our species has been subdivided. This account, however, is not at all like that of the current text-books of human anatomy such as Quain's and Gray's. It is anthropological rather than anatomical; in fact, the author limits himself to the consideration of those characters which afford racial distinctions or which point to affinity with the apes. The title of the book, indeed, implies its scope, for it is obviously taken from the *Zeitschrift für Morphologie und Anthropologie*, a journal devoted to physical anthropology and the structure of the apes. The origin of this muscle and the insertion of that are, in fact, of no interest save in so far as they recall by their variations a similar state of affairs in the anthropoid apes or appear to furnish a valid racial character among men; so, too, with brain and sinew, bone and gut.

The beginnings of this study are to be found in a memoir published in 1699 by Edward Tyson with the aid of the Royal Society. In this work that author, the first of anthropologists, compared the bodily structure of the chimpanzee with that of man and one of the lower apes. It is a curious fact, which may be commented upon in passing, that Tyson termed his chimpanzee "orang outan sive homo sylvestris." The Latin is a translation of Malay words but, as everybody knows, the orang is a totally different beast from the chimpanzee. The latter is a native of Africa and the former is Malayan. This confusion between two entirely different anthropoid apes has been lately further confounded; for the Hon. Walter Rothschild in exhibiting to the Zoological Society a magnificent series of skins and skeletons of gorillas and chimpanzees took occasion to point out that the proper name of the chimpanzee—i.e., the name which has priority—is *Simia satyrus*, a name which has hitherto been applied only to the orang of Borneo. Since Tyson the study has been forwarded by most of the great anatomists of the eighteenth and the beginning of the nineteenth centuries, and there are plenty of workers to-day whom to enumerate would be a long task and from whom to select would be invidious. The

earliest text-book of this subject, or at least the earliest impressive *résumé*, is Huxley's well-known "Man's Place in Nature." But such text-books are so few that Mr. Duckworth may be congratulated in occupying a part of a by no means well-filled area. The chief fault we find with the book is the coarseness of the majority of the illustrations which, considering its price, does not reflect credit upon the Cambridge University Press.

The same remark applies, though not to so large an extent, to the second of the volumes which we notice in this column. This consists of a number of separate papers upon anthropology and the anatomy of various primates which have been partly published elsewhere and are partly printed here for the first time. Many of the illustrations, indeed, of this volume are repeated in the handbook, notably those of the brains of various lemurs and apes. In describing these brains Mr. Duckworth initiates a useful plan. In zoological matters a species is described from a "type," which is the actual skin or, it may be, skull or skeleton upon which the species was founded. Future descriptions are referred to this type for likenesses and differences. In an analogous way the author of the book under review considers the splendid catalogue of brains in the Museum of the College of Surgeons by Dr. Elliott Smith to represent the types of the several brains described. It would be capital if anatomists generally would adopt this or some such plan in dealing with the brains of different species. Then a vast deal of ink and paper would be preserved for future use. A memoir dealing with the cerebral convolutions of a given animal could be much abbreviated. As it is, the literature relating to the brain is so extensive that it is difficult for those interested in comparative anatomy generally to include the study of brains. Most of the memoirs in this volume deal with craniology and many are based upon human skulls in the museum at Cambridge.

Diseases of the Heart: A Clinical Text-book for the Use of Students and Practitioners of Medicine. By EDMUND HENRY COLBECK, B.A., M.D., B.C. Cantab., F.R.C.P. Lond., D.P.H. Cantab., Physician to Out-patients at the City of London Hospital for Diseases of the Chest, Victoria-park, E., &c. With 43 illustrations. Second edition, revised and enlarged. London: Henry Kimpton. 1904. Pp. 350. Price 7*s.* 6*d.* net.

THE appearance of a second edition of Dr. Colbeck's book within a comparatively short time of its original publication shows that it has won favour with those for whom it was written and we think that it deserves the success which it has attained. Without making any pretensions to originality or novelty it yet presents in a clear and readable form the accepted views with regard to the phenomena and the treatment of cardiac disease. The book is dedicated to Sir William Broadbent and his teaching is reflected in many respects.

After a short account of the anatomy and the physiology of the heart the author deals at some length with methods of diagnosis, giving a separate chapter to the consideration of the pulse. Next follows an account of congenital affections of the heart, in which perhaps additional clearness might have been gained by the insertion of diagrams illustrating the complicated process of development of this organ, always difficult to render intelligible to the learner. Diseases of the pericardium follow; and here we may remark that writers upon cardiac disease almost invariably speak of paracentesis pericardii as a simple operation free from risk. In view of the very great difficulty which may exist in distinguishing an enlarged and feebly acting heart from a pericardial effusion, it would seem better to advise beginners at all events to exercise great discretion in the matter. Dr. Colbeck next deals with acute and chronic endocarditis, with the various forms of valvular disease, and with affections of the myocardium. It would, perhaps, be well if more care were taken by teachers to point out to students that hypertrophy of the heart is not in itself a diseased condition but rather an attempt to compensate defects existing in the circulatory apparatus. The book ends with chapters on angina pectoris and functional diseases of the heart.

The advice as to treatment for various kinds of cardiac lesions is generally prudent and sensible. We are glad to see that the author has not been infected with that distrust of alcohol as a remedy which is so sedulously fostered by a certain school of modern writers. That it is a valuable drug when used with proper discretion we have no doubt whatever. The sections on treatment might, perhaps, have been made still more instructive by insistence here and there upon small practical points, e.g., the influence of posture as an aid in the removal of dropsy, raising of the head of the bed or allowing the legs of the patient to hang down while he reclines propped up in a chair being often most useful measures before, or together with, paracentesis. We doubt whether Southey's tubes are the best means of withdrawing the fluid from the legs. It would have been better if more attention had been paid in the index to subject matter and less to names of authorities; thus we find no reference under "dropsy" to the treatment of this condition, all the pages mentioned dealing solely with its pathology, whereas we find 13 references to Sir William Broadbent, although few readers are likely to want to look up all the passages in which any one author's name is mentioned. Still the blemishes are, on the whole, slight and the merits of the book are many. We can safely recommend it to students and practitioners as a useful handbook.

A Text-book of Human Physiology. By ALBERT P. BRUBAKER, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College, Professor of Physiology in the Pennsylvania College of Dental Surgery. With coloured plates and 354 illustrations. London: Rebman, Limited. 1904. Pp. 699. Price 17*s.* 6*d.*

THE treatises on physiology which are at the disposal of the student may be divided, though without any strict lines of demarcation, into three classes. At one extreme stand the primers of Foster, Lowne, Starling, Beale, and Ashby, which aim only at supplying the reader, professional or otherwise, with a general view of the subject, yet often contain a considerable amount of very serviceable information the acquisition of which by the learner would prevent the exhibition of total ignorance of particular subjects that is sometimes displayed at examinations by men who are in other points well informed. At the other extreme are the large and comprehensive works on physiology the publication of which was initiated by Haller at the close of the eighteenth century and which were followed by the "Handwörterbuch der Physiologie" of Wagner, by the Todd's "Cyclopædia of Anatomy and Physiology," and by the treatises of Schäfer, Howell, and the later editions of the works of Foster in English, of Landois in German, of Morat and Doyon and of the "Dictionnaire de Physiologie" in French, which last, beginning in 1895, has only now reached the letter G at the end of the sixth volume, promising to run on for at least another decade. These comprise the whole field of physiological research, usually give bibliographical references, and supply such information that for further research the original memoirs in each subject must be consulted. Between these extremes are a number of text-books, manuals, elements, handbooks, and essentials of physiology, like those of Yeo, Halliburton, Starling, Anderson Stewart, Noel Paton, Raymond, M'Kendrick, Ott, Hall, and Waller in

English; Ranke, Valentin, Grünhagen, and Borvttaw in German; and Beaunis and Küss and Duval in French; all of these aim at supplying the medical student with a succinct account of the present state of our knowledge of the functions of the body which can be understood without the reader possessing much acquaintance with physics, mechanics, chemistry, mathematics, or other collateral sciences. Such treatises usually represent the basis or groundwork of the lectures delivered by each professor, which he expands and illustrates in his discourses by freehand drawings on the blackboard, by larger and more elaborate drawings, by photographic slides and lantern, and by appropriate experiments.

As the foundations of physiology are now securely laid and are given in all these works the superiority of one treatise over another depends on the particular facts selected and the mode in which the story is told or the style in which these facts are presented to the reader. The treatise of Dr. Brubaker belongs to the last-named class and is a favourable specimen of it. The facts are clearly stated, the proportionate space given to each section is reasonable, the student is not troubled with a diversity of opinions, whilst a dogmatic style is adopted throughout. If any faults are to be mentioned one would be that the very excellently executed illustrations are too anatomical. We will take the heart as an example. Dalton's diagrams of the action of the valves really show their function perfectly well, whilst the interior of the heart as shown in the drawings after Allen Thomson are, or ought to be, known to every student during his first year of dissection. In the same way several of the illustrations of the cranial nerves after Hirschfeld and one or two of those in the section on Respiration and Phonation might have been omitted. We are quite aware that an argument in favour of their retention may be maintained on the ground that such illustrations brighten the text and attract the attention of the student and interest him in it. Still, they take up much space and are of doubtful value. Very few students, we imagine, read the lettering of such illustrations completely through. Another defect, and we say this without in any way disparaging Dr. Brubaker's treatise, is that considering that the work is intended for students who are about to become family physicians the application of physiological facts is to a large extent neglected: for example, the effects of cooking on food of various kinds and the advantages of using cooked food are scarcely ever referred to, though Liebig thought it worth while to introduce that subject in a physiological work and the changes effected by cooking probably take an important place in the longevity of man as compared with other primates. It should be pointed out again that the quality of the food ingested is of great importance. We do not suggest a cookery book, but surely a few economic references are not beneath the dignity of the science of physiology. The same observations apply to exercise and athletics and also to the value of the coagulability of the blood, of the retraction of arteries and of the closure of their mouths, and of the failure of the heart's action in syncope from hæmorrhage.

The general arrangement of Dr. Brubaker's work is that several chapters deal with the composition of the body, the physiology of the cell, the histology of the epithelial and connective tissues, and the physiology of the skeleton. The author then devotes two long chapters to the physiology of muscle and nerve and follows these with chapters on the several functions of the body, as food and digestion, absorption, the blood, the circulation, respiration, animal heat, secretion, excretion, the central nervous system, the special senses, and reproduction, all given with much clearness and accuracy. A short section is devoted to physiological apparatus.

We have no space to quote at any length from the text but it may be noticed that Dr. Brubaker gives some interesting calculations in regard both to the superficial area of the blood corpuscles collectively and the rapidity of their reproduction after hæmorrhage. Thus by multiplying the estimated area of a single corpuscle by the aggregate of corpuscles in a cubic millimetre and the number so obtained by the cubic centimetres of blood in the body, which he takes at 5769 grammes or 5453 cubic centimetres, he finds the total area of corpuscular surface to be 3496 square metres—a very large surface to present to the air for respiratory exchange between oxygen and carbon dioxide. Again, the rapidity of reproduction is extraordinary. A computation made by Mr. Charles L. Mix shows that a woman loses during a menstrual period 150 cubic centimetres of blood. At the end of 28 or 30 days this volume is restored, so that in one day five cubic centimetres or 5000 cubic millimetres of blood must be formed, or 208 cubic millimetres per hour and three and a half cubic millimetres per minute. In other words, during a certain number of years 15,750,000 corpuscles must be formed in women every minute and this independently of the daily loss due to functional activity. It should be remembered, however, that Dr. John S. Haldane and Professor J. Lorrain Smith consider that the ordinary estimate of the total quantity of blood in the system at one-thirteenth of the weight of the body is far too high and that from one-eighteenth to one-twentieth would be nearer the mark. Dr. Brubaker overcomes the difficulty of explaining the nature of extravascular coagulation of blood by briefly, as well as lucidly, stating the five different theories of Schmidt, Hammarsten, Arthus and Pagés, Pekelharing, and Lilienfeld, though we should have been glad to find some hint of his own views to guide the student.

The get-up of the work is extremely good and beyond a few typographical mistakes in the spelling, especially of foreign names, we have not discovered any errors.

Under the Care of the Japanese War Office. By ETHEL MCCAUL, R.R.C. With illustrations from photographs. London, Paris, New York, and Melbourne: Cassell and Co., Limited. 1904. Pp. 256. Price 6*s*.

Miss McCaul's book will, we think, be perused with both profit and interest, and certainly with a considerable degree of the latter, on the part of the general reader. To begin with, it relates to the war in the Far East, to which all eyes have been turned since the commencement of the struggle between Russia and Japan for supremacy in that part of the world; and it gives some brief sketches of the personalities of many Japanese generals and other authorities with whom Miss McCaul came in contact in the course of her mission and with whose names and deeds the reading public have of late become so familiar. The book is in diary form and is necessarily discursive, but it is written in a fresh and easy style which, so far as the Japanese arrangements are concerned, becomes highly eulogistic. The fact that Miss McCaul had had previous war experience in South Africa, having nursed in a field hospital with Sir Redvers Buller's column from the battle of Colenso to the relief of Ladysmith, qualified her to bring an educated and intelligent judgment to bear upon all that she saw and heard and to take advantage of the facilities so freely afforded to her by the Japanese Government and War Office for studying the systems of military nursing and hospital arrangements in their actual working order. Miss McCaul, it may be remarked, undertook her special mission to Japan and Manchuria in order to obtain information about the Red Cross Society and military nursing at the seat of war. This was done with the sanction of Queen Alexandra and this book relating the results of her experiences is dedicated to Her Majesty. Miss McCaul was received in audience by the Empress of Japan and was everywhere treated with all

courtesy and consideration. All nursing and hospital arrangements were freely exhibited for her inspection and she also proceeded to the front, visiting the battlefield at the Yalu. One of our reasons for stating all this is to call attention to the very different consideration and treatment accorded to our medical attaché, Colonel W. G. Macpherson, R.A.M.C. This officer, whose previous training and knowledge of both our own and of continental army systems rendered him well qualified to appreciate at their right value Japanese methods of procedure, seems to have been meanwhile losing the opportunity of doing so owing to the supine action of our own War Office. The lady diarist tells us that finding him still regretfully waiting at Tokio on her return there from the front she handed him a valuable translated paper on sanitation and some photographs on the understanding that he should use them in his own official report.

There is no department of the army that is subjected to more severe and, we may add, often very unfair criticism than the army medical service for its alleged shortcomings in the field. It is consequently mortifying to find this lady nurse saying, "It is very grievous to think how little real trouble is taken at home by the officials to see that our army medical men do actually acquire the priceless knowledge and experience which are to be gained only at the commencement of a war like the present." And to quote again, "The authorities at home seem to content themselves with the fact that an army doctor has been sent out to Japan, but as to seeing whether he has the suitable means for carrying out his mission is a secondary consideration."

Speaking of the favourable impressions which she derived from all that she was privileged to see Miss McCaul says that these far surpassed her expectations. The Japanese, as we all know, are an extremely clever people endowed with extraordinary powers of organisation and stimulated by a patriotic ardour which is almost carried to fanaticism. Amongst their most distinguishing traits are economy and exactness—"an *economy* without stint, and an *exactness* which involves the minutest attention to the smallest of details." Indeed, it may be said that as the whole civilised world now recognises the fact that there is no longer any need to dwell upon the remarkable qualities which the Japanese army have exhibited in this war, so it may be also said that these qualities are equally manifest in the medical branch of it. In the way of excellent organisation, singleness of aim and purpose in its methods of procedure, and strenuous efforts in practically accomplishing the work which it has set itself to do, the Japanese medical service has admittedly done uncommonly well in the present war. Nor need we go far to seek the explanatory cause of this success—namely, its preparedness for war. Every detail had been carefully thought out and practically provided for in order to give the Japanese soldier a complete equipment and field outfit readily adaptable to the varied conditions that he might have to encounter in the field; and as regards the organisation and administration of the hospital service and sick transport from front to base every arrangement which foresight could suggest seems to have been well considered and, where deemed advisable, adopted. It is in respect of these details that the value of Miss McCaul's book with its illustrations mainly consists and makes it worthy of being studied. It embodies as much as could well be included within the limit of its pages and quite sufficient to make it both profitable and interesting reading. This only serves to make us share in the regret expressed by the author that the earliest opportunity of seeing and fully reporting on matters of such importance and interest to the army and its medical service was, owing to no fault of his, lost to the medical attaché who was sent out by the War Office for this express purpose.

LIBRARY TABLE.

Five Years' Medical Work on Lake Nyasa. By ROBERT HOWARD, M.B., B.Ch. Oxon. London: The Universities Mission to Central Africa. 1904. Pp. 105. Price 2*s.* 6*d.* net.—This little book is practically a report made by Dr. Howard to his medical board, Dr. Howard being a member of the Universities Mission to Central Africa. It is now published by order of the general committee. The report contains a variety of information which will be found of great use to every worker in Central Africa and indeed in many other regions of the same continent. On p. 9 we find an excellent note on precautions against mosquitoes but we think that the description of the mosquito net should be made more clear in a future edition. After laying stress upon the fact that mosquito nets are usually too small Dr. Howard says: "They should be seven feet long, three feet wide, with calico round the lower two feet of the net." We read these instructions over and over again without being able to understand them in the least and we have a fairly wide experience of mosquitoes and nets. Finally, we wrote to the secretary who kindly forwarded us a pattern which made the matter quite clear but he also forwarded us a copy of instructions for making the net which were even more incomprehensible than those given by Dr. Howard. In a future edition this passage should either be altered or else deleted, for as it stands it is useless. The net as completed is seven feet wide, seven feet high, and three feet broad, and obviously if kept in good condition is a complete protection. The calico all round the bottom is indispensable. Dr. Howard also points out that the bed should be large enough to allow the sleeper to be covered by the net without coming into contact with the net, a point which is often overlooked. The remainder of the book is mainly taken up with medical reports of the various stations and the general conclusion to be drawn from the report is that firstly it is foolish for European missionaries to try to live like natives; secondly, that the rule that a new comer should have a furlough at the end of his first two years has been very beneficial; and thirdly, that there is need for a hill station as a holiday and recruiting establishment.

Herbert Fry's Royal Guide to the London Charities. London: Chatto and Windus. 1905. Pp. lvi.–387. Price 1*s.* 6*d.*—The 1905 edition of this valuable compilation is as full and useful as ever. Mr. John Lane, the editor, contributes an interesting preface in which he says: "The past year has been a bad one, not only for all hospitals and charitable institutions, but for trade generally." Let us now consider what a vast sum of money London takes for charities in a bad year. According to the Classified Directory to the Metropolitan Charities for 1905 there was given a sum in charity, excluding the money subscribed for foreign missions, of, in round figures, £5,500,000. If to this be added the sums given out of the rates to education, relief in sickness and relief in poverty, the average man cannot but wonder why there should be such exceptional distress as is existent at the present time in Tottenham and West Ham. All the same, the charitable will, we hope, continue to give and for him who wishes to know how to give alms wisely there is no better small guide than the one now before us.

The Englishwoman's Year-book, 1905. Edited by EMILY JANES. London: Adam and Charles Black. Pp. 368.—This excellent book of reference now published for the twenty-fifth year fully sets forth the vast sphere of work of various kinds which is now open to women. Education, the professions, industrial work, the arts, public work, philanthropic, social, and religious work, are all dealt with and apparently the lonely and unemployed spinster of former years should now be a thing of the past.

THE LANCET.

LONDON: SATURDAY, JANUARY 21, 1905.

The Report of the Medical Officer of Health of the Administrative County of London.

WE are indebted to the clerk to the Council for a copy of Sir SHIRLEY F. MURPHY'S report on the health of the Administrative County of London for the year 1903. As the volume has been in our hands for only a few hours it is impossible on the present occasion to do more than to notice very generally a few of the chief considerations that are suggested by a first and cursory reading. In later issues of THE LANCET we hope to do fuller justice to a work the production of which must have entailed a vast expenditure of statistical labour on the part of its author and his staff, lay as well as medical. The present report is the twelfth that in the course of his official career Sir SHIRLEY MURPHY has contributed to the literature of preventive medicine. The same general features characterise the arrangement of the entire series but, when the later numbers are compared with the earlier, we are impressed by the steady but very substantial progress, both statistical and administrative, that is revealed in the successive volumes. In his first report the county medical officer had to content himself with a survey of the official reports of the metropolitan vestries and with such statistical data concerning mortality and its causes as could be gleaned from the blue-books of Somerset House. As years have progressed, however, his hands have been strengthened in many ways, notably by the acquisition of powers for the compulsory notification of infectious disease and by the passing of by-laws for the regulation of the building of dwelling houses and for the control of lodging houses.

Again, we are glad to note that only very recently the County Council has completely reorganised the public health department at Spring-gardens and has done so after a fashion that seems calculated to increase greatly its efficiency and to coördinate the action of the several departments which hitherto appear to have worked on practically independent lines. Without going into minute detail we may state that it has been decided to place the administrative charge of the Council's public health and educational departments in the hands of two medical officers who will be responsible to Sir SHIRLEY MURPHY as their chief. According to this rearrangement, which has already received the Council's sanction, Dr. W. H. HAMER assumes the control of one branch with the title of medical officer for general purposes and with the rank of senior assistant to the medical officer of health, whilst Dr. J. KERR continues at the head of the other branch with the title of medical officer for purposes of education. In regard to Dr. KERR, until recently medical officer of the School Board for London, the Council recognises the fact that an important branch of his duty consists in examining into, and reporting upon, the sources and causes of dissemination of epidemic and infectious diseases within the county. It is therefore considered appropriate that this very important work should be brought into the closest touch with the general health administration of London without losing its distinctive characters. This change of system will, in the Council's judgment, be most satisfactorily carried into effect by placing the late School Board's medical officer in the Council's public health department as medical officer (education), an arrangement which will give Dr. KERR a position under Sir SHIRLEY MURPHY who will doubtless allow him a considerable amount of independent action so far as education work is concerned. Accordingly, the arrangement here indicated is now in force and we doubt not that great advantage will in consequence accrue both to the purely sanitary and to the educational work of the County Council. So far as we know the hygienic inspection and control of the metropolitan water-supply have not as yet been vested either in the County Council or, indeed, in any other authority. Nevertheless, having regard to the intimate relationship which is well known to exist between the drinking of contaminated water and the spread of infectious disease, it is obviously desirable that the fullest control should be intrusted to those public authorities who are legally responsible for the maintenance of the public health. Whether or not this change for the better will be accomplished in the near future remains to be seen but it is to be hoped that when the constitution of the new water board comes to be settled the London County Council, the interests of which are so largely at stake, will take care that this aspect of the question shall receive the consideration which it deserves.

From a professional standpoint the most instructive portion of the county medical officer's present report is that which deals with the prevalence and the intensity of disease. In a manner peculiarly his own, Sir SHIRLEY MURPHY martials his facts concerning incidence and mortality so as to indicate clearly the influence thereon of age, sex, and locality, and further, to show how far these have been modified by sanitary surroundings or by meteorological conditions. These details, accurately recorded and uniformly tabulated in the successive reports, have become increasingly serviceable as the years have passed; but, at the present time, after a dozen years' experience of compulsory notification, Sir SHIRLEY MURPHY is able to furnish a series of diagrams and tables illustrative of the prevalence and the fatality of the chief diseases in a vast and typical urban community that are not only intensely interesting to the medical practitioner but are almost essential to the local medical officer of health who possesses in these volumes a trustworthy standard to which the rates of attack or of mortality of any prevalent disease in another urban district may fairly be expected to approximate. In his present report the county medical officer of health records a rate of mortality from all causes which in the history of the metropolis is unique. And although in view of the fact that extra-metropolitan England has fully partaken of the general reduction in the death-rate Sir SHIRLEY MURPHY attributes this very largely to the persistence throughout the year of unusually favourable

meteorological conditions, nevertheless we must not lose sight of the further fact that in the present state of the law London has to accept the unenviable position of an asylum for the accommodation of the refuse alien population from every country in the world. Having regard more especially to the latter consideration we congratulate the county medical officer on the encouraging account contained in his report for the year 1903. In future issues of THE LANCET we purpose to follow in detail Sir SHIRLEY MURPHY'S record of the incidence and the fatality of the several epidemic and infectious diseases dealt with in the volume before us.

Some Thoughts upon Charitable Relief.

To many thoughtful people it is obvious that in the administration of charitable relief there is too often a lack of guiding principles, of economic knowledge, and of cohesion in administration. On this difficult subject a recent volume by the Rev. CLEMENT F. ROGERS[1] throws much clear light. It is a thoughtful and philosophical attempt to formulate lines of action for all almoners, whether clerical or lay, and if the Christian teaching laid down is so much in evidence as to make the work almost theological its good sense brings it within our purview as a paper dealing necessarily with all social problems. We cannot follow the author very far in his attempt to trace the motives of charity to the words of the Founder of the Christian religion. To send a cheque in answer to the first appeal opened and to consign the others to the waste-paper basket is a form of haphazard mercy which assuredly does little to bless either him that gives or him that takes, and while it is opposed to all Gospel teaching it is equally opposed to the most elementary principles of prudence or generosity. No charity worth doing can be done without trouble. The trouble taken is worth more than the gifts given, both to the donor and the social fabric, which includes the recipient. Busy, capable men can often give as much by assisting in administration as by guaranteeing donations. King WENCESLAUS may no longer trudge through the snow with a basket-bearing page but the foremost persons of the realm can (and do), as working members of the practical committees, set most valuable examples in methods of economical expenditure and selection of charitable objective. It is a good omen for our country, we think, that there was never a time when so many great men, busy men, and rich men—men with calls of the most immediate importance upon their time and their talents—were ready to respond to the paramount claims of charity and to help by personal service.

The proper administration of temporary help to those in temporary distress is one of the most difficult tasks in citizenship. It demands a wide scope of knowledge of the conditions of many social grades, a grasp of the economical vicissitude of many forms of labour, the proper estimate of many psychological and physical infirmities, and a discernment, kindly in standpoint, of the influence of inherited taints. The practical almoner must know the value of money in his area of work, the ruling wages of various callings, the prices of necessaries, and, above all, the intricacies of rent. He must know the difficulties of the applicant and the reasons of those difficulties, and the applicant's character, surroundings, work, and power. This knowledge connotes some—nay, a close—grasp of social and economical questions, often too deficient in the average district visitor, and not always abundant in the clergy who are the principal superintendents of the country's alms. To ascertain such points as we indicate care, patience, time, and thought must be lavishly employed. An objection is often made that people who are doing charitable work thoroughly are making a lot of fuss to give away a few shillings. The idea is dominant that "giving away" is in itself good. It would be good if the donor himself conducted the distribution carefully, or even if the gift deprived him consciously of any luxury, but these conditions are rarely fulfilled and facile open-handedness is actually a drawback to the community. In many cases those in temporary distress are as much in need of originality of effort and moral power to reconstruct their lives as they are of material alms but to supply such intellectual help is far more difficult than signing orders for coals or groceries. A worker in poor districts who has no power to refuse the undeserving, no desire to avoid being deceived, and who cannot suffer gladly the infinite capacity for tiresome and ignorant worrying which exists in the distressed poor had better seek some field of occupation more contemplative and philosophical than practical charity; and there is no class in the kingdom knows this better than the medical man who is brought into such intimate relation with the sick poor. A proper estimate of the standards of life and character among the poor is a necessity and can only be acquired by trained experience. The ethical codes of the extremes of society differ somewhat. A virile violence is permitted by society in Plumstead which would be an offence in Piccadilly; in certain industrial quarters lapses from chastity before marriage are condoned which in wives would be severely reprobated—a reversal of Mayfair morals according to modern playwrights and novelists; and, speaking generally, codes vary with material almost as much as with meteorological environment. The charitable worker must learn to appreciate such varieties and to make allowance for them, while maintaining a breadth of mind which will avoid hasty generalisation and preserve him from too rigid classifications. The necessary breadth of idea and duly balanced estimate of conditions can be expected only in persons possessed of education and cultivation; they are not to be found, or rarely, among the poor themselves. That the labouring classes are clumsy and short-sighted as administrators of alms is becoming apparent in the committees of the rural parish councils, though most admirable work is performed by the same class of individuals when working under the disciplined organisation of such bodies as the Salvation Army or Church Army. In the complexities of life of large towns, involving separated areas of dwellings for rich and poor, the personal contact between classes has largely failed. To supply its place a far more carefully devised system of organisation in relief is demanded than was necessary in the village. Personal intimacy and individual help have degenerated into dealing out tickets to a miscellaneous crowd and writing

[1] Charitable Relief, by the Rev. C. F. Rogers. London: Longmans and Co. 1904. Sm. 8vo. Price 2s. 6d. net.

reports for patrons as to the number of "families dealt with."

In spite of the statesmanlike policy of Poor-law administration laid down by the late Sir HUGH OWEN there has been since the Local Government Act of 1889 a tendency to revert gradually to the system of indiscriminate out-relief which was for a time destroyed by the Commission and Act of 1834—a system etched on the memory of the nation by the vitriol of CARLYLE'S "Past and Present." In the construction of boards of guardians the value of persons of liberal education and of broad views of life is neglected; the deficient imagination and narrow outlook of many members of such boards tend neither to a proper responsibility in dealing with public money nor to a balanced administration of charitable relief. We do not agree with Mr. ROGERS that all cases of Poor-law relief should be left entirely to the Poor-law officials; it may be a true principle for work in towns, which he has, perhaps, more closely in his mind throughout his book, but it would tend in country districts to obliterate private charity and no one could give surer evidence of this than the medical practitioner. We recommend to all our readers the perusal of this book. It only touches lightly upon some of the most familiar aspects of poor relief but the indictments drawn by an eminently practical writer against some accredited forms of charity are strong. The picture painted of the average school treat in the form of a day's outing is sufficient to give pause to the most sentimental lover of children. The excitement, the noise, the fatigue, the indiscriminate feeding, and the often considerable waste of savings by the children in the purchase of additional and unwholesome food are matters to be considered. The waste is so great on many of these expeditions that a very small increase in expenditure would, where the total money was properly administered, provide a real holiday in the country or at the sea of some days' duration. Upon that popular treat, "a day in the country," the author is no less severe. He tells of a class of 33 girls in a very poor neighbourhood in which is situated a mission which issues broadcast appeals for subscriptions towards "a day in the country which to a poor London child is the one red-letter day in the year." And he adds that in this class it appeared that four girls went to one treat, nine to two, three to three, seven to four, seven to five, two to six, and one to eight. The remedy for all this sort of thing is organisation, and organisation implies personal service.

The "Cure" of Fractures.

THE chief characteristics of much modern surgery are the thoroughness with which the treatment is carried out and the completeness with which recovery is insured. In days gone by there were surgeons as dexterous as any now living, as skilled for their time as those now operating, but they were content with results which at the present day would be considered incomplete. A surgeon is no longer satisfied in a case of carcinoma of the breast with obtaining for his patient one, two, or even three years' respite from a return of the disease; nothing less than a reasonable chance of total absence of any form of recurrence in the scar, in the lymphatic glands, or in distant organs will appear like success to him. The mere incision of the thorax for an empyema was at one time looked upon as an adequate treatment for the condition, even though for months, or years, a sinus discharging a large quantity of deleterious material might persist. At the present time the surgeon will resect one or more ribs, or, if need be, will perform some far more elaborate operation in order to induce that falling in of the chest wall which will lead to a permanent obliteration of the pleural cavity. Instances might be multiplied and will recur to the minds of all our readers. But along this line of progress there are great possibilities of advance and several things combine to suggest that the thoroughness which so marks surgical effort in some directions is a little to seek in others. Our successors of 50 or 100 years hence will certainly regard with interest the results which fully gratified the surgeons of 1905 but they will with equal certainty regard these results as very imperfect. We cannot look upon our own work with the eyes of our descendants but we may to some extent recognise that our results are not always all that can be desired. And it may be pointed out that the better the surgeon, the more completely equipped he is both theoretically and practically, the more obvious are to his mind the shortcomings of his procedures.

The lack of completeness in many of our results opens a way, and is responsible, for much of the bone-setting which abounds in this country to-day and it is necessary to consider closely the situation which presents itself. We can all treat with success an uncomplicated fracture, say, of the tibia. The fragments of the broken bone are carefully replaced, splints are bandaged on, and a few weeks' rest in bed produces a firm osseous union of the two portions of the bone. Hardly any deformity can be detected on rigorous examination or even with the aid of a skiagram. Yet when we regard the case from another aspect we see that the result leaves much to be desired. Anatomically there may be little fault to be found with the limb but physiologically it is far from being a perfect member. The patient cannot use it as he could before his accident. The knee-joint and the ankle-joint are stiff; the long confinement between splints has resulted in the formation of numerous bands of adhesions, whether within the joints themselves or in their neighbourhood; muscles and tendons may have shortened from the enforced rest and the pain and tenderness combine with the adhesions in limiting movement. The patient can hardly after six or eight weeks of rest do more than get about feebly with the aid of crutches. After some months an increased mobility of the limb may be obtained and work may be resumed. We do not suggest that all cases of uncomplicated fracture of the tibia have this history, or even a majority of the cases. But, on the other hand, all fractures of the tibia are not uncomplicated and by as much as the difficulties of treatment are enhanced by so much are the risks of physiological disability multiplied. There can be no doubt that too many cases of fracture are pronounced "cured" when the patient feels that the injuries which he has received are still far from being wholly annulled. In

very many instances this cannot be remedied; we have only to remember the pressure upon our hospital beds to see this. But we think those surgeons are right who, with a prudent dislike for the word "cure," as well as with a desire to perfect their task as far as possible, point out to the patient that there may be a perceptible period during which his recently fractured limb will cause him a greater or a less degree of trouble and who give forethought as to how such trouble may be alleviated. Far too much trust, we all know, is placed in the resumption of movement to restore full utility to a recently fractured limb, if only because the difficulty and the pain of movement combine to prevent any attempt at using the joint. The cases we are considering are not "surgical failures," for that which was broken has become firmly united; but they bring a great deal of undeserved obloquy on the surgical profession, for the "cured" patient complains aloud that he is by no means a healed man. To take another common example, a joint has been injured by a fall or a blow. There has been much effusion of blood and serum into, and around, the joint. The surgeon rightly enforces rest for the damaged joint and with time and rest the joint recovers from the "sprain," but, alas, it is stiff and painful. Any attempt at using it is followed by a return of the effusion and of the pain. Cases such as those which we have mentioned serve to make the reputation of bonesetters and to cast discredit on the medical man concerned and, through him, on the whole medical profession. The treatment adopted has been correct but it has stopped short of being sufficient to lead to a full and complete return to physiological usefulness. The adhesions which have formed are allowed to continue and the utility of the limb is impaired. When such a case comes under the notice of a bonesetter he has no hesitation in making a diagnosis and the diagnosis nearly always is that "a little bone is out of place," even though anatomy knows nothing of the existence in the place indicated of any "little bone." With a forcible and even violent movement he breaks down all the restraining adhesions and thus frees the stiffened joint, when the patient is immediately bidden to use the limb. Except for slight and temporary pain the patient finds that the movements of the limb are easy. The miracle that has been accomplished is noised abroad and the patient is prepared to swear that at the moment when the bonesetter forcibly moved the limb the noise of the "little bone" returning to its place could be clearly heard—the noise being, of course, due to the snapping of adhesions. Thus slight is the foundation on which the reputations of most bonesetters are built, for nearly all the credit to which they are entitled is due to success in breaking down adhesions in stiffened joints. Medical men appreciate the theoretical importance of preventing the formation of, and of breaking down, these adhesions but often in practice the adhesions are allowed to form and to continue. Patient and medical man alike are too ready to use the rash word "cure" and a high percentage of fortunate issues obscures the possibility of further symptoms.

We hear much of the successes of bonesetters; we hear little of their failures, though many surgeons have to treat cases in which irreparable injury has been done by their unskilled violence. Having but one method of treatment—namely, the energetic flexion and extension of joints—it is inevitable that this drastic and simple therapy should be employed in some cases for which it is utterly unsuited and dire may be the consequences. Let us imagine the knee of a child in which there has been extensive tuberculous disease. After months of careful rest a disappearance of the activity of the disease has been obtained and the joint has become stiff. To the untrained eye of the bonesetter the condition may not be distinguishable from that resulting merely from disuse after injury; forcible flexion of the joint is performed and the child is urged to use the limb. As to the result there can be no two opinions among competent judges. The tuberculous process, temporarily obsolescent, will take on an acute phase, rapid spread of the disease in the joint and its neighbourhood will occur, and the limb or even the life of the child will be sacrificed. Of these untoward results the world hears little. When success follows resort to a bonesetter the patient proclaims far and wide the greatness of the miracle and the merits of the bonesetter and incidentally, as it were, the incompetence of his previous medical advisers. But when failure follows the bonesetter's violent manipulations the victims or their parents are anxious to hide as far as possible the foolish action which has led to tragedy. We publish a case in our columns this week, under the care of Mr. T. H. OPENSHAW, where this unfortunate sequence of events was avoided, a case which shows that even in disease of joints where no return of mobility can be expected the results obtained are not so thorough as could be desired. For every ankylosed joint there is an "optimum" position; for the elbow it is about a right angle, for the knee the best position is the fully extended, and if the surgeon recognises that it is inevitable that the joint should become permanently stiff he should take care that the limb is placed in the position which experience has shown to be the most convenient. This, of course, is the A B C of surgery which should only be mentioned with apologies. Sometimes, however, it happens that when the surgeon first sees the case a vicious position has already been assumed and the question arises as to the best method by which the angle at which the joint is fixed can be improved. Of course, if the union be osseous nothing but resection will suffice, but if the union be fibrous two methods are open to the surgeon. That more usually employed is forcible correction under an anæsthetic; but this is very likely to light up any quiescent tuberculous disease and may cause rupture of blood vessels. Mr. OPENSHAW'S case was one of fibrous ankylosis of the knee in a boy; marked flexion was present and this was entirely overcome and the leg was straightened by the use of Hessing's splint-case appliance with steel-bar traction. The straightening took six weeks and was painless and the process did not interfere with the boy's walking. Thus a leg which was used with difficulty and which led to much tilting of the pelvis was transformed into a strong and useful limb, although the knee was permanently stiff. This is a good example of the benefit resulting from care and ingenuity in carrying out the ultimate treatment of a case.

Annotations.

"Ne quid nimis."

IS ALCOHOL A FOOD?

IN our issue of Oct. 22nd, 1904, p. 1162, we published a leading article under the above heading. We have now received a letter from Mrs. Mary H. Hunt, National Director of the Bureau of Scientific Temperance Investigation, Boston, Massachusetts, in which occurs the following sentence:—"You there assert, as evidence of unwise and tyrannical power wielded by the temperance people in America, that 'school teachers throughout the country were compelled to devote a certain amount of time to instructing their pupils on the dangers of alcohol and were compelled to use only such books as denied that it had any virtues as well.' Your statement shows that you have been misinformed." Mrs. Hunt proceeds to say that it is true that every State in the United States now requires that the nature and effects of alcoholic drinks as a part of physiology and hygiene shall be taught to pupils in all public schools, but there is no law in America that specifies what the nature of alcohol is, nor is there any statute in America that requires only such text-books shall be used as deny that it (alcohol) has any virtue. The laws have left the choice of text-books to the school officials, but, she continues, "For the guidance of these officials a standard as to what is true and what should be taught on this subject was prepared in 1887 by eminent scholars, educators, physicians, members of state boards of health, chemists, &c., but this standard, while influential, had no legal power. It was only advisory." With regard to this statement we reply as follows. Many of the laws in the United States actually specify that one-fifth of the space in the text-books shall be given to "temperance matter" and although they do not legislate as to the character of that matter we can hardly suppose that even moderate praise of alcohol would be reckoned to be "temperance matter." As a matter of fact, though there may not be actual legislation on the subject of the selection of books, the way in which the law operates is such that there is as much compulsion in the use of certain books as though the law had actually specified them. In a further portion of her letter Mrs. Hunt says: "Evidently you have been misinformed concerning the attitude of American temperance reformers for the purpose of being used in a desperate attempt to check the most efficient instrumentality now in operation for the prevention of intemperance. For your recent utterances on this question are being sent out through the newspapers all over the country. In many of these you are being credited with opinions quite contrary to that we have quoted above from your editorial." It is practically not within our power to prevent the press of this or of any other country from publishing garbled extracts from our columns. Mrs. Hunt further implies that we have been exploited for the purpose of being used to check the prevention of intemperance. The simple reason for the publication of the leading article in question was the appearance in the same issue of THE LANCET of an article by Dr. W. H. Goddard—an article which represented some ten years' work and which was a report of a careful physiological investigation into the action of ethyl alcohol as a food. We still maintain that alcohol is a food when used in moderation. It does undergo combustion in the body and it serves as a source of energy. It would certainly be cheaper to get the same energy from the grain or the fruit from which the alcohol was made, but nevertheless it has a food value in the narrow sense in which we were careful to use the word.

YAWNING.

YAWNING is a complex, automatic, physiological phenomenon whereby the lungs are fully expanded, the heart is stimulated to greater activity, and, probably, the blood is charged more fully with oxygen. It commences with an involuntary spasm of certain of the muscles of mastication and deglutition; its termination is akin to the process of sighing, and, like this manifestion of deep breathing, it reinforces respiration. At night, when respiration is slackening, or in the morning, when it has not recovered its waking rhythm, yawning is accompanied sometimes by the "stretching" of successive groups of muscles the blood vessels of which have probably been compressed by the previous assumption of a constrained position; the local circulation is thus assisted and stimulated. The preacher, the novelist, and the artist employ the mechanism of yawning as an indication of ennui, of lack of interest, or of wearied attention, whether real or feigned. To the clinician it should be significant of an attack of asystole and consequent temporary anæmia of the brain, especially of the corpus striatum. In diseases where "air-hunger" is a frequent symptom yawning is also exhibited. It is met with in diabetes, in fatty and fibroid changes in the walls of the heart, in pericarditis, and in the pathological conditions which lead to the faulty filling of the aorta. Yawning suggests the proximity of a fatal ending after copious hæmorrhage and in pernicious anæmia and Addison's disease. Dr. Hughlings Jackson recorded a remarkable demonstration shortly after the introduction of the use of the ophthalmoscope. He was surveying the fundus of an eye when suddenly the field became pale. This pallor was due obviously to a contraction of the retinal blood vessels. He thereupon stood back, expecting something to happen, and in fact the patient immediately yawned. The observer had seen, in part, a spasm of the cerebral arteries.

HOT-WATER STANDPIPES: A SUGGESTION.

IF it could be practicable to supplement gas, electricity, and water-supplies with a public service of hot water it would be an immense boon to householders in London. A constant service of hot water would confer enormous benefits on the community. To mention a few, coal fires could be done away with in domestic buildings and a powerful contributory factor to the formation of irritating and dirty fog would be removed. Standpipes could be erected in the streets and a spray of hot water turned on to remove snow or to render the slippery, icy streets comfortable for the poor hard-working horses. The scenes occasioned in our busy thoroughfares by the sudden onset of a keen gale, severe frost, and pelting sleet on Monday last were of a most distressing kind. Vehicular traffic was perforce suspended and the lot of the horse was of the most cruel description, while pedestrians ran great risk of a nasty accident on the exceedingly slippery pavement. It would be interesting to know how many horses had to be slaughtered owing to the casualties of Monday night. Such abnormal conditions of weather, however, are on the whole happily rare and our street authorities can hardly be blamed for their unpreparedness to deal with the sudden effects of keen frost, wind, and snow upon the roadways and pavements. Indeed, they possess practically no machinery for the purpose. Sand was of very little use; cinders were much more effectual but the supply of small cinders is not easy to obtain. Though the scheme of a general public supply of hot water may appear to be impracticable at present it is not surely entirely chimerical to suggest that here and there in our streets small rapid gas heaters or geysers could be attached to standpipes connected with the water mains. The water, however, need not be intensely hot for the purpose.

The removal of snow or ice by hot water would at any rate be much more satisfactory and comfortable than by distributing salt which produces a nasty intensely cold liquid slush dangerous to the health of both man and beast alike. We commend the suggestion to the members of the Metropolitan Water Board who might lend their aid towards the consummation of such a scheme.

THE DEVELOPMENT OF FLAGELLATED ORGANISMS FROM THE SPLEEN.

IN the November part of the *Quarterly Journal of Microscopical Science* for 1904 Captain Leonard Rogers, I.M.S., the acting professor of pathology in the Calcutta Medical College, gives an account of the development of the flagellated organisms, extremely like those named trypanosomes, which he observed to take place from the protozoic parasites obtained from the spleen in cachexial fevers and in kala-azar. These results were embodied in a paper which we published in our columns on Jan. 7th by Captain Rogers and Mr. G. C. Chatterjee. Kala-azar Captain Rogers considers to be a severe form of the disease formerly termed malarial cachexia, for which he substitutes the term cachexial fever, remarking that this affection is certainly second to none in the frequency and seriousness of the illness which it produces in many parts of India, whilst it also appears to be widely distributed in other countries. The article is accompanied by a plate showing all the intermediate stages from the amœboid stage, corresponding closely with the forms of trypanosoma Brucei described by Rose Bradford and Plimmer in the lungs of animals affected with tsetse fly, to a stage 96 hours subsequently in culture experiments, when the flagellum is fully developed. The drawings were executed by a native artist, Behari Lal Das, and under a $\frac{1}{12}$ lens and a No. 4 ocular the enlargement was 925 diameters. The preparations were all made with Romanowsky's stain used by Leishman's method. The blood was obtained by puncturing the spleen and was immediately placed in small sterilised test tubes containing a little sodium citrate to prevent coagulation, and was then incubated at various temperatures. At blood heat the parasites rapidly underwent degenerative changes and after 24 hours most of them had disappeared and the remainder stained badly. When the culture tubes were placed in a cold incubator at 27° C. (81° F.) the life of the parasites was preserved, their numbers underwent great increase and divisional forms were met with in large numbers, and their characters were studied. Two forms could be distinguished, the first being a simple sub-division of the small oval parasites into two, both the macro- and the micro-nucleus first dividing and then the body of the cell splitting into two longitudinally. Such varieties are rare in blood obtained from spleen punctures but are common in culture specimens. In the second mode of division the process is multiple, both the macro- and the micro-nucleus dividing frequently instead of only once until an appearance is presented of numerous very small nuclei arranged in pairs of a small and a large kind inclosed in a zoogloea-like material. These enlarge gradually, each pair becoming surrounded by a faintly discernible capsule which becomes more and more distinct until the characteristic groups of the oval binucleated fully grown spleen parasites result. These are to be seen in blood obtained by spleen punctures. On lowering the temperature of the citrated culture tubes to 22° C. (72° F.) further and more important changes were soon found. During the first 24 hours the small oval spleen parasites enlarged, the enlargement being chiefly caused by the swelling of the macro-nucleus and of the protoplasm of the cell, whilst the micro-nucleus underwent little change. At the end of 48 hours further enlargement had occurred and double forms appeared which, from various circumstances, led Captain Rogers to regard them, not as the results of division, but as a kind of conjugation analogous to that occurring in other protozoa preparatory to the evolution of new stages in their life-history. At the end of the third day the conjugating pairs of organisms have become elongated and pyriform, the macro-nuclei occupying the thick ends and the micro-nuclei the thinner ends, from which the flagella will eventually arise and in some specimens the flagella had actually been developed. During the fourth day the number of flagellated organisms as well as of double pyriform bodies had greatly increased. Hence it appeared that organisms could be obtained from the spleens of patients suffering from cachexial fevers which in their form, structure, and development closely resemble trypanosomata. A further point of interest is that the fever is endemic, infecting particular houses, and may thus be carried from one to another in the same house by flies or mosquitoes.

FLANNELETTE.

SURELY the days of inflammable flannelette should be speedily numbered. The death roll amongst children who have been fatally injured by the ignition of this perilous fabric is simply appalling. The wearing of flannelette has again and again exposed children to the same risk as if their nightdresses were soaked in spirit. The fabric catches fire as easily and burns with the same intense flame as alcohol, and the flames are not readily extinguished. "An inquest was held yesterday on the body of a little boy, aged two. He was left to play in a room while his mother was absent. He was in a flannelette night shirt. The mother had not left the room long when she heard screams and found the boy in flames. He was terribly burnt and the poor little fellow died within 24 hours of the occurrence." Such is the sort of heartrending paragraph constantly appearing in the newspapers. We are assured that the Home Office has requested coroners to make returns on the number of these cases and surely there is enough sad evidence already to hand to warrant the prohibition of inflammable flannelette for wearing purposes and especially for irresponsible little children. One coroner alone has stated that last year he held no less than 73 inquests on children who had been burnt to death and a large proportion was due to flannelette igniting. Are not the sacrifices already sufficient and sad enough to justify the Home Office at once taking very definite action? In this matter what humane person can speak of waiting "until the returns are completed"?

X RAYS FROM STATIC MACHINES.

IN the November number of the *Archives of Electrology and Radiology*, Chicago, is an editorial article entitled "Are the X Rays generated by the Static Machine Dangerous?" The article in question was prompted by a remark which was made by Dr. W. Salisbury Sharpe in a communication to THE LANCET,[1] in which it is stated "that dermatitis from x rays generated by a static machine has not yet been seen." The editor feels that the evil consequences which would result to many if the inference as to safety implied by this assertion were allowed to go without comment justify him in calling attention to the matter. He goes on to say that this opinion as to the innocuousness of static machine-generated x rays was very prevalent up to about four years ago. It was entertained by himself until an unfortunate demonstration of the fact on his own person persuaded him that his trust was misplaced. He instances the cases of two medical men who were severe sufferers from this cause—one of whom had to submit to the amputation of one hand and some fingers of the other. The second case was even more serious, necessitating a severe operation after a long period

[1] THE LANCET, Oct. 1st, 1904, p. 968.

of complete disability and confinement to bed for several months. While the x rays so generated are not as active in bringing about a dermatitis as are the rays from a tube excited by a coil, yet such rays can, and will, produce burns that are just as bad as those chargeable to the coil-excited apparatus if proper precautions are not taken. In view of the fact that the static machine is very extensively used for x ray work in America, as compared with this country, these remarks must carry considerable weight. That the rays from a tube excited by a static machine possess much less tendency to burn has been common knowledge among x ray workers but it has always seemed to us dangerous to assume that such rays are devoid of any such power. As a matter of fact, dermatitis has been produced in London by means of a tube excited with a static machine. It thus follows that those who practise radiography with a static machine should be none the less careful in their precautions against the production of undesired dermatitis than when using a coil.

THE MEDICAL DEPARTMENT OF TRINIDAD AND TOBAGO.

Mr. Hugh Clifford, Colonial Secretary of Trinidad and Tobago, in his report on the Blue-book of the colony for 1903-04, remarks that the total cost of the medical department for the year under review amounted to £81,233, of which £34,912 were expended on personal emoluments and £46,321 on other charges. This sum, which shows an increase of £6300 over the expenditure under the same heading in the preceding year, is equal to one-tenth of the total expenditure of the colony, and it not only exhibits a tendency annually to increase, but advances automatically with the growth of population of the colony, in a fashion which, under the existing system, defies control. In Trinidad not only has the Government taken upon itself to provide the services of qualified medical officers in districts where the practice available is insufficient to remunerate adequately a private practitioner but it has also assumed as part of its duty the support of a variety of institutions which in Europe are usually maintained either solely or principally by voluntary contributions. The conditions which prevail in this colony are, of course, widely different from those which obtain in most European countries. The number of the very wealthy is here far smaller in proportion to the population; the average of poverty is greater, though indigence in the tropics is robbed of many of the terrors which it has in colder climates; and there is lacking in Trinidad that strong well-to-do middle class which, both in France and in England, forms the backbone of the nation. The few really rich men in Trinidad have innumerable calls upon their generosity; the less wealthy have little to spare when the demands made by the high cost of living have been satisfied; the poorer classes, from whom the principal users of the Government institutions are naturally drawn, are unwilling to pay for what they receive there, even when they can do so although at the cost of some personal inconvenience. The reason for this is partly that the system under which natives of India are introduced into Trinidad necessitates the establishment of estate hospitals and the appointment of medical officers in the districts which immigrants inhabit. The other labouring and the poorer classes, not unnaturally, consider that they have an equal right with the imported East Indian to the privileges and advantages which, in this respect, the latter enjoys; and they are not, therefore, prepared to pay, if payment can be evaded, for what they regard as no more than their due. Beyond this, however, it has seemingly become a fixed idea in the popular mind that the Government is able to provide all that is desired by the individual at the charges of the State without injury to the remainder of the community; that Government property, being public property, is something of which each taxpayer has a right to make use whenever the opportunity serves for his personal advantage; and that this can be done without the capacity of the Government for useful expenditure in other directions being sensibly impaired. Mindful of the fact that, more especially in a tropical country, the public health is a matter of the first importance, the Government has found itself obliged to maintain, practically single-handed, a number of institutions for the treatment of the sick, the insane, the decrepit, and the diseased, and in so doing is so unfortunate as to lack the support of that sound public opinion which should force those who are able to pay to decline to receive the charity of the State whenever payment, though possibly irksome, is within their means. That the position is fast becoming serious is indicated by the fact that though the annual expenditure of the medical department, including the cost of medical and charitable institutions, amounts to one-tenth of the total annual expenditure of the colony—that is to say, to over £81,000—the reimbursements derived from paying patients, including members of the police force and others from whose pay deductions are made for the purpose, do not average £3000 per annum. During the year under review 13,493 persons were admitted to the various Government hospitals, 12,110 were discharged relieved or cured, and the deaths numbered 1524. The number of patients in the other Government institutions on March 31st, 1904, was as follows: lunatic asylum, 610; leper asylum, 313; and house of refuge, St. Clair, 371. The total number of inmates of Government hospitals and institutions on March 31st was 2248, being a little more than 0·7 per cent. of the entire population of the colony.

IODOFORM FILLING FOR BONE CAVITIES.

THE success attending the ordinary operation of filling or stopping carious teeth has doubtless suggested to many surgeons the desirability of employing some similar substance for filling the cavities left in bones after operations. When the cavity is aseptic, as after the removal of a cyst, it apparently fills with blood clot which organises and so the cavity is obliterated but when a bony cavity is septic the process is very tedious for the discharge of pus generally continues for months. About five years ago Professor von Mosetig Moorhof of Vienna commenced to study the question of the best method of filling bone cavities. At first he employed an iodoform paste of the consistence of putty but this did not reach the minute recesses of the cavity and therefore he devised a liquid filling of which he gave an account last year in the *Deutsche Zeitschrift für Chirurgie*, and we publish in this number of THE LANCET (p. 146) a description of Professor Moorhof's method and results by Mr. B. Seymour Jones. The filling lately employed consists of iodoform, spermaceti, and oil of sesame, and melts at 122° F. (50° C.), so that when melted it can be poured into the cavity and fills it completely. It has been found necessary that the cavity should be aseptic and quite dry; these essentials are obtained by methods very similar to those employed in filling carious teeth and if the filling is properly applied only slight serous exudation occurs. For the mode of introduction of the filling and the precautions taken we refer the reader to the article mentioned but here we will consider the results. Since iodoform gives a dark shadow in a skiagram it is easy to follow the course of events in the bone cavity. The dark area is gradually replaced by lighter patches, showing that the plugging material is absorbed and replaced by granulation tissue, but so slow is this process of absorption that no symptoms of poisoning ever occur. In its turn the

granulation tissue is replaced by bone, as shown by an extension of a dark shadow from the periphery in the skiagram. Professor Moorhof has now applied this method in some 220 cases. All forms of bone cavity have been filled, whether due to the removal of sequestra or to cysts, and he has even applied it in two cases to an empyema of the antrum of Highmore. He has extended the method to the treatment of joints after excision and in the article referred to details are given of the mode in which it is carried out. It is apparently not essential that the iodoform plugging should be completely covered in, for in a few cases a sinus has communicated with the mouth and yet the process of healing has continued undisturbed. The most remarkable of all the cases was one in which Professor Moorhof operated for two sinuses of the sternum in a girl, 14 years old. Part of the bone was removed and then it was found that there was much caseous material in the anterior mediastinum; when this had been cleared it was discovered that a sinus passed into the posterior mediastinum. When the whole cavity was cleared and cleaned it was filled with iodoform plugging and more than 200 grammes (about seven ounces) were employed. The patient was much improved and the hectic temperature disappeared but death occurred about four weeks after the operation. Professor Moorhof claims to have had no failure in all the cases which he has treated by this method and it certainly deserves a trial in suitable patients. It may have applications in addition to those for which Professor Moorhof has employed it. We shall hope to hear further of this ingenious device and we have no doubt that many surgeons in this country will be willing to put the method to the test of experience.

BUTTER FRAUDS.

BUTTER still appears to be the vehicle of considerable fraud and the margin of profit which the practice yields has led to the devising of some ingenious methods of carrying it on in the teeth of the Margarine Acts. There is undoubtedly a good deal of margarine sold in this country as butter; shops are opened, as appears in the following instances, for the sale of "butter" which, in fact, is margarine, and as soon as a summons is issued the establishment ceases to exist, only to be started elsewhere. Again, when a conviction is obtained the fines are readily paid and every effort is made to prevent a second or third conviction (which brings a large penalty) by changing the salesman in the shop. We referred to this kind of swindle in THE LANCET of Sept. 24th, 1904, p. 906, and the present cases appear to be a sequel. A company of men has been for some few years working on these lines in most of the Lancashire towns by opening shops in Oldham, Bolton, Ramsbottom, Wigan, Blackburn, and elsewhere with the apparent purpose of selling Irish butter from their own farms. Three men were charged with obtaining by false pretences certain small sums of money. It was shown that the prisoners opened a shop in Ramsbottom in November last, sold what purported to be butter to a number of customers at about 10*d*. a pound, and also gave away certain quantities on opening the shop. Such butter according to the description would have been worth 1*s*. 2*d*. per pound. The police purchased certain samples which on analysis proved to be margarine worth 5*d*. or 5½*d*. per pound. The analyst stated that the samples were almost entirely margarine of an inferior quality. The usual defence was put in, one man pleading that he had nothing to do with any false pretence and the others that they did not know what they were selling as they were employed by a third party who paid to them a weekly wage. They were, however, found guilty. The police stated that another man who had been associated with them had been fined £40 for a similar offence and had undergone three months' imprisonment in default. It was stated that there was a gang of about 40 men who opened shops as the prisoners had done and who disappeared when summonses were issued. They were wanted in various parts of the country. The police had a list of between 30 and 40 places where shops had been opened and had been in existence for some time. The chairman said that the bench thought that the prisoners were part of a gang trying to swindle the public, and the poorest of the public. They would, however, for some little time at least, be prevented from doing this. They would be sentenced each to 12 months' imprisonment with hard labour. A few more prosecutions of this nature will do more than the Margarine Acts to prevent the sale of margarine for butter. The officers of the Lancashire county council deserve every credit for running these swindlers to earth and we should like to see similarly successful operations started against many other forms of swindles in which the substitution of the spurious article for the genuine is the rule. Imprisonment with hard labour is more likely to have a deterring effect than the infliction of paltry fines.

LESIONS OF THE OPTIC NERVE FROM FALLS.

THE case of fracture of the anterior fossa of the skull diagnosed as division of the optic nerve by Dr. F. J. Hathaway, recorded on p. 158, presents several points of interest and although the literature of such cases is limited it is not quite so scanty as Dr. Hathaway believes. Thus von Hölder gives in an early volume of Graefe and Sämisch's *Archiv für Ophthalmologie* (Band vi.) the statistics of 124 cases of fracture of the skull, of which 86 were fractures of the base, and in 79 of these the fracture involved the roof of the orbit. In 63 of these cases there was a fissure or fracture running through the optic foramen, always through its upper wall and sometimes also through the inner wall. In 42 cases there was hæmorrhage into the sheath of the nerve, but in all these cases the bony canal was fractured. Messrs. Norris and Oliver in their valuable "System of Diseases of the Eye," from whom we have borrowed the above statistics, state that Dr. Callan has reported nine cases of injury to the orbital walls resulting in immediate unilateral blindness, in which it was believed that the line of fracture ran through the optic foramen. Dr. Callan calls attention to the fact that the frontal bone unites with the nasal, superior maxillary, lacrymal, and ethmoid bones by a continuous line of sutures until the lesser wing of the sphenoid is reached and at this point the suture line bifurcates, forming an obtuse angle and close to the apex of this angle lies the optic foramen. The jar caused by a blow upon the orbit would find its weak point along this line of sutures and the first point of resistance would be at the bifurcation adjacent to the optic foramen. The jar could not follow both lines with equal force at, and beyond, the bifurcation and consequently the unequal strain would result in fracture of the bone in the optic foramen, causing compression or laceration of the optic nerve. Dr. Noyes, who in his "Treatise on Diseases of the Eyes" gives some excellent and instructive drawings, states that Prescott Hewett gathered together 68 cases of fracture of the base and found that the orbit was involved in 23. Panas, again, calls attention to the fact that according to Leber and Deutschmann fractures of the roof of the orbit implicate the orbital canal in 60 per cent. of all cases. Dr. Hathaway seems to have no hesitation in stating that the optic nerve was divided in his case but there is little doubt that hæmorrhage into and outside the sheath of the nerve in its course through the optic canal has been observed on post-mortem examination and the symptoms point to this. A rider, for example,

is thrown from his cycle and falls heavily on his shoulder, striking the side of his head. On recovering from the shock, and before swelling begins, he finds that he can see. As the ecchymosis of the lids proceeds he is unable to open the lids and has temporarily complete loss of vision. When the swelling has subsided vision is again recovered to some extent and may then in course of years again slowly deteriorate with supervention of white atrophy, or it may remain stationary with much impairment, or it may undergo some improvement; in the latter case probably hæmorrhage in the orbital canal took place at the time of the accident and the effused blood has undergone partial absorption. Only a necropsy can determine whether the nerve is actually divided. It is only surprising that amongst the innumerable falls which cyclists have suffered more instances of this kind have not been recorded. Probably many cases have occurred but the visual trouble is lost sight of or disregarded in view of the cerebral and often fatal lesion.

THE CASE OF DR. A. D. GRIFFITHS.

As will be seen by a letter which appears in another column, Dr. A. D. Griffiths's local professional brethren have not confined themselves merely to passing resolutions of sympathy with him in the terrible anxiety which he has recently undergone. The facts of the case were duly set forth in an annotation published in our issue of Dec. 17th, 1904, p. 1733, under the heading "A Vile Conspiracy." Shortly to recapitulate them they were as follows. A woman named Faithfull asked Dr. Griffiths to attend her for some gynæcological trouble. At the second attendance the husband assaulted Dr. Griffiths, at the same time heaping accusations upon him. The wife also swore in court to acts of immorality with Dr. Griffiths but as the result of an action brought by him for slander the jury awarded to Dr. Griffiths £500 damages. The judge pointed out that in his opinion Faithfull's charges were absolutely groundless. The defendant did not appear and of course the £500 will never be paid. Dr. Griffiths ha been saddled with expenses to the amount of some £205 and the medical men of Cardiff and the neighbourhood have accordingly determined to raise a fund whereby to reimburse him. We have the greatest pleasure in giving voice to their appeal for funds and we trust that not only the medical men of South Wales will subscribe but also many of those in other parts of the kingdom. Such an experience as Dr. Griffiths has recently undergone may be equally the lot of any practitioner in the kingdom and the courage with which Dr. Griffiths faced a very painful situation not only has worked for his own good but for that of every one of his professional brethren.

ADMINISTRATION OF WATER BEFORE GIVING CHLOROFORM TO PREVENT VOMITING.

IN the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of Dec. 25th, 1904, Professor Denucé has described a simple method of preventing vomiting after administration of chloroform which he has found very successful—the administration of water before the anæsthetic is given. The *rationale* of the method is as follows. During the induction of anæsthesia acts of deglutition may be observed. These result in the swallowing of air charged with chloroform. The chloroform irritates the mucous membrane of the stomach, which according to the usual practice is empty, and causes vomiting. Hence the efficacy of lavage of the stomach which has been employed in the treatment of the vomiting. Professor Denucé therefore asks, Why not prevent the vomiting by not allowing the chloroform vapour to come in contact with the mucous membrane of the stomach? This can be accomplished if the chloroform vapour enters a stomach full of fluid instead of an empty one. Fluids are withheld before the administration of chloroform from fear of vomiting and the passage of the vomited matter into the air passages. But it is well known that most troublesome vomiting may occur with an empty stomach and the vomiting of a small quantity of water would not be attended with much danger. Moreover, as suggested, the presence of chloroform in an empty stomach is probably the most frequent cause of the vomiting. In attempting to prevent this result by insuring the presence of fluid in the stomach it must be remembered that liquids may be quickly absorbed from the stomach or pass into the intestine. After several trials Professor Denucé adopted the following method. One and a half hours before the operation the patient is given a "large glass" of water and the dose is repeated every half hour until the time of operation when the last one is taken. Thus in all four "glasses" are taken amounting to about 800 grammes of water. The results exceeded Professor Denucé's expectations. In 20 cases there was not the slightest vomiting or even nausea during or after the operation. Many of the operations, which included laparotomy for double ovariotomy, radical cure of inguinal hernia, and operation for hydatid cyst of the liver, were long and complicated. That 20 cases are insufficient to decide the merit of any method all will admit but independently of the small number of cases recorded there seems reason to doubt Professor Denucé's premisses. The probable cause of sickness after chloroform inhalation is not so much the swallowing of the vapour of chloroform as the ingestion of saliva and mucus impregnated with the vapour in the mouth. Salivation is provoked by most of the anæsthetics in use and when it is excessive vomiting is severe but the nausea and emesis are reduced or prevented when care is taken to prevent the patient swallowing. The lateral posture of the head will usually effect this. In patients who have gastric trouble tenacious mucus is liable to collect in the viscus and if this is brought in contact with swallowed chloroform which has become condensed the vomiting may persist for days. It is in such cases that lavage, whether complete or only practised as Professor Denucé recommends, proves most useful. It washes away this thick glairy mucus and prevents the chloroform remaining as an irritant to the mucous membrane of the alimentary tract.

AN UNJUST RIDER.

AT Lewisham last week Dr. H. R. Qswald, the coroner for the South-East district of London, held an inquest upon a commercial traveller who had died two days previously from small-pox. The coroner stated that the deceased was sent to the Metropolitan Asylums Board receiving station at Rotherhithe, it being thought by three local medical men that he was suffering from small-pox, and that when he arrived at Rotherhithe he was seen by the superintendent who decided that the case was not one of small-pox and sent him home again, where he died. Evidence was given in support of this statement and Dr. T. F. Ricketts, medical superintendent of the small-pox hospitals of the Metropolitan Asylums Board, owned frankly that death had probably been due to hæmorrhagic small-pox. Whereupon the coroner's jury having brought in a verdict in accordance with the medical evidence, added an unjustifiable and ill-informed rider. This was to the effect that when a case was sent to the Rotherhithe receiving station a certificate should be forwarded, signed by two medical men, stating that they were of opinion that the person was suffering from small-pox, and also that the case should not be rejected unless it was seen by another medical man in addition to the superintendent.

For some 12 years Dr. Ricketts has been engaged in the task of receiving or rejecting small-pox patients and this is the first occasion upon which the grave difficulties of diagnosis seem to have betrayed him. Such a record of successful observation has seldom, if ever, been achieved, for it implies being correct in many thousands of instances as against one slip, small-pox being notoriously one of the most difficult diseases to diagnose. The idea that medical certificates from outside could be employed to remove discretion from the superintendent of the small-pox hospitals is silly, as silly as is the suggestion that the superintendent should be provided with a consultant physician. We hope that the Metropolitan Asylums Board will take some steps towards a public display of confidence in Dr. Ricketts whose record is such a good one and whose splendid work in the last epidemic of small-pox, work of one man as it was, counted a great deal in the safety of a community of millions. We think that if the coroner had realised the situation he would have pointed out to the jury the mistakes in their rider.

THE SUPRARENAL CAPSULES.

A LONG and carefully written report on the development, structure, and functions of the suprarenal capsules by Dr. R. Minervini of Genoa appears in the September and October numbers of the *Journal de l'Anatomie*. Dr. Minervini prefixes a short historical notice to his essay in which he states that the capsules were discovered and described in 1563 by Barthélmy Eustachius, or at least mentioned by him in his work entitled, "De Renibus Libellum," published in that year. They were subsequently described by Bauhin and by Casserius who named them "renes succenturiatæ" and by Bartholinus by whom they were designated "capsules atrobiliaires," believing them to secrete a humour called "atrobile." Little advance was made till the middle of the last century when Addison demonstrated their connexion with bronzed skin. Since Addison's time much attention has been paid to them in consequence of the remarkable action of their secretion in producing increase of blood pressure, demonstrated by Ed. Schäfer, and Dr. Minervini has examined the development of the capsules in a very large number of vertebrates from fish upwards but has specially devoted his attention to birds and mammals. We can only give here a *résumé* of the results which he has obtained. In regard to birds he finds that in the embryo of the hen's egg the first indication of the capsules is on the fourth day of incubation and in that of the pigeon on the third day. In both an isolated cellular nodule makes its appearance in the mesoderm behind the peritoneal epithelium and close to the root of the mesentery. It is upon a level with, or a little above, the upper end of the Wolffian body and the germinal epithelium and is prolonged towards the lower and internal part of the Wolffian body and dorsally to the germinal epithelium. These three parts—Wolffian body, germinal epithelium, and suprarenal capsule—may therefore be considered as developing simultaneously but the capsules form independently of the other two. Hence the hypothesis of its connexion with the pronephros, as others have noticed in the amphibia, seems to be highly probable. In regard to mammals and man, it may be said that during embryonic and fœtal life the suprarenal bodies are in general of large size in comparison to that they attain to after birth. In the human fœtus they are always larger than the kidneys. Each capsule is composed of a single substance—that is to say, of special cells which present but slight differences in point of size amongst themselves either in the central or in the peripheral regions. But Dr. Minervini is not in a position to say whether these cells form the cortical substance of the capsule alone, so that there is no medullary portion during the whole of embryonic life, or whether, as seems to him most probable, they represent both the cortical and medullary portions of the capsules not yet differentiated or in an almost indifferent state, the distinction into cortical and medullary portions occurring at a later period. He has never met with true nerve cells in the capsules but has frequently found vascular glomeruli—a fact that has not hitherto been mentioned in regard to mammals, though such bodies were seen by Rabl in the fowl. They occupy a position in the external and middle zone and seem to atrophy as the time of delivery approaches. The capsules appear at a very early period of embryonic life in the dog and in man but do not then present any relation with the Wolffian body or with the cortical gland substance. The structure of the suprarenal capsules is given by Dr. Minervini in much detail not adapted for abstraction and is illustrated by four plates and many figures. As regards the functions he considers that notwithstanding that they contain lymphatic tissue and nervous elements they are essentially glands and that the cells of the medullary substance are not nervous but glandular and probably less advanced in evolution than those of the cortical portion. The capsules contain two substances, both of them toxic and both possessing the power of raising the blood pressure. They are glands producing an internal secretion (endocrines) and like other glands with an internal secretion their action is complex and manifold. Besides regulating the composition of the blood and exerting a more obscure influence on the genesis or destruction of pigment they undoubtedly possess an antitoxic action—that is to say, they neutralise various poisons of endogenous origin derived from organic metabolism, especially that or those proceeding from the disintegration of muscle. They also exert a regulating action on the circulation of the blood owing to their hypertonic and angeiotonic properties. It may even be admitted that they have an antitoxic action on bacterial poisons, fixing or neutralising them in a mode of which we are at present ignorant, and in this way they play a part in defending or protecting the system from infections. Lastly, it may be said that they influence the sexual functions, or at least that the function of the capsules is in relation with those of the sexual organs, responding, so to speak, to the phases of sexual life.

CHRONIC PEMPHIGUS OF THE MOUTH.

IN some cases of pemphigus mucous membranes, especially that of the mouth, are attacked. In rare cases mucous membranes alone are affected and the disease may not be diagnosed. In the *Boston Medical and Surgical Journal* of Dec. 22nd, 1904, Dr. J. W. Farlow has published two cases of chronic pemphigus of the mouth. In one case the patient was a girl, aged 22 years, and in good health. For nearly a year she had complained of blisters forming in the mouth, generally on the gums near the teeth. They appeared from time to time and were painful and interfered with eating. On the gums near the front teeth and on the inside of the cheek was a whitish membrane easily detached and leaving a raw surface. Some of the spots were of the size of a cherry-stone, others were larger. Examination of the teeth gave no clue to the cause. The blisters continued to appear and the patient was lost sight of. In the second case a woman, aged about 55 years, was seen in July, 1897. For some time blisters had appeared on the lips and gums and the inside of the cheeks. On examination slightly raised reddish swellings with raw surfaces were found on the gums near the upper left front teeth. In September the inside of the cheek and the under surface of the right side of the tongue were very sore. In October blisters appeared inside the right lower alveolar process. They were at first reddish but soon lost their covering and became raw and

tender. In spite of general and local treatment crops of blisters appeared from time to time in the mouth. The patient went to Europe and was treated by several eminent dermatologists without success. In 1904 she had ulceration of the right cornea and lost the sight of the eye. She was treated in New York during about a year for pemphigus of the conjunctivæ and mouth. The blisters in the mouth were controlled by arsenic which she had difficulty in taking. Blisters also occurred on the mucous membrane of the nose, chiefly on the septum, with pain, formation of crusts, and obstruction to the breathing. At one time the vagina was affected. In the treatment of pemphigus of the mucous membranes it is most important to keep the teeth, mouth, nose, and throat clean by the use of alkaline and antiseptic washes in order to prevent secondary infection of the erosions. If the pain interferes with eating it may be necessary to use local anæsthetics such as cocaine, orthoform, or morphine. Internal treatment is not satisfactory, though arsenic is strongly advocated by some writers.

CURRENT THEORIES OF THE HEREDITARY PROCESS.

IN the second lecture[1] delivered at University College, London, on Nov. 29th, 1904, Professor W. F. R. Weldon dealt with the phenomena of reproduction as it occurs in the sea-urchin (*Echinus*), an organism higher in the scale of development than Hydra. The egg of Echinus is surrounded by a relatively thick gelatinous envelope, at the top of which exists a pore (micropyle) for the entry of the spermatozoon, whereby the fertilisation of the egg is effected. The nucleus of the egg cell is situated in the upper region of the cell. The lower part of the ovum is coloured by a pigment band in the region between the equator and the lower pole of the egg. "This pigment band," said Professor Weldon, "is a landmark which enables us to follow with facility the cleavage and division of the ovum after impregnation." The impregnated nucleus divides into two parts, the cell protoplasm undergoing a similar division, the divided nuclear and cellular portions seeming to be equal in size and similar in appearance. The first and second cleavages take place in the vertical plane and at right angles to one another, thus giving rise to four blastomeres, each provided with its band of pigment in the proper position. The volume of the four blastomeres is equal to that of the parent egg cell; there has been cell division without growth of bulk. An equatorial division now occurs of the blastomeres resulting in an eight-cell stage. The four upper cells are slightly tinged with pigment at their lower poles; the four lower cells contain practically all the pigment. From the four pigmented cells are budded off four smaller "micronuclear" cells which occupy the lower pole of the mass of blastomeres, while the four upper pole cells divide into eight. This mass of 16 cells is termed the morula. The eight clear cells of the upper region give rise to the ectoderm of the future embryo or larva, the eight pigmented cells of the lower zone give rise to the alimentary canal (archenteron), cœlomic epithelial walls, and gonads, while the unpigmented micronuclear cells creep inwards during the next stage of growth and give rise to the mesamœboid cells. The next stage (blastula) is characterised by further cell division and the formation of a hollow sac the wall of which is wholly composed of "clear" and "pigmented" cells, the micronuclear cells having proliferated and migrated within. These mesamœboids subsequently give rise to the right and left mesoblastic masses or bands arranged on each side of the gut which is now being invaginated from the lower pole of the blastocœle. There is at first radial symmetry but as the process of invagination (gastrulation) advances bilateral symmetry succeeds; a bending of the gastrula and gut takes place so that a ventral and dorsal aspect is recognisable. On the ventral side is formed the stomodæum or mouth, by a local depression of the ectoderm meeting and fusing with the blind end of the gut. A band of perioral ectoderm with cilia now develops and two long bifurcate calcareous spicules are formed within the body. The ciliated band becomes prolonged into two oral and two anal processes, and the stage of a free-swimming larva (Pluteus) is attained. Driesch has found that a blastomere of the two-cell or four-cell stage if isolated is capable of forming a half-sized or miniature but perfect gastrula and larva, and that even a blastomere of the eight-cell stage develops into blastula, gastrula, and larva. Moreover, pieces of moderate size cut from the globular blastula before invagination has begun grow up and close into small blastulæ which produce perfect larvæ. But after invagination has taken place pieces cut from the organism do not produce perfect larvæ but defective or monstrous forms which die. The equipotential stage of the cells in the blastular cell wall has gone. Certain constituents in the sea water are, said Professor Weldon, necessary for the proper development of Echinus; thus if calcium salts are absent abnormal morula and blastulæ appear and the same occurs at high temperatures, above 28° C. The future functions of cells essentially equipotential are largely determined by their position in the blastula, the experiments and studies of Driesch, Hertwig, Morgan, and Roux showing that this holds good for echinoderms, nemertine worms, amphioxus, the tunicates, teleostean fishes, and amphibia, while by partial mechanical separation of blastomeres in the pre-embryo of the frog double-headed, double-tailed, and other monsters can be produced (Hertwig, Speman, and Born). On the other hand, the egg of Nereis (Wilson) and of Beroë (a ctenophore) shows high degrees of preformation, and the early blastomeres of the two- and four-celled stage are not equipotential. The significance of these facts in heredity and disease would be pointed out later.

[1] An abstract of the first lecture appeared in THE LANCET of Jan. 7th, p. 42.

MUNICIPAL ECONOMY AND THE STANDARDISATION OF DISINFECTANTS.

WE understand that the public health committee of the Chelsea borough council has decided to modify the schedule for the supply of carbolic disinfectants so that the price shall be based upon the germicidal equivalent of the preparation and not on its volume. In the case, for example, of a tender requiring 2000 gallons of carbolic acid or its germicidal equivalent 200 gallons of any disinfectant having a guaranteed carbolic acid coefficient of over ten would represent the same germicidal efficiency, and if the prices quoted were 1*s.* 6*d.* per gallon in the former case and 4*s.* in the latter there would obviously be a considerable saving. This is a step in the right direction, for the real value of a disinfectant is, after all, its germicidal efficiency, just as the value of certain commodities is dependent upon the proportion of active principles which they contain. Thus the price of chloride of lime used for bleaching purposes is based upon its proportion of active chlorine and the price of a fertiliser upon the percentage of principles (phosphates, nitrates, or ammonia) available for the sustenance of plant life.

THE annual dinner of the present and past students of the University of Durham College of Medicine, Newcastle-on-Tyne, will be held in the library of the College on Friday, Feb. 3rd, at 7.15 P.M. Dr. R. S. Peart will be in the chair. Tickets, 7*s.* 6*d.* each, may be obtained on application to Mr. A. Beresford Jones or Mr. Sydney

Havelock, honorary secretaries, at the College. Students and graduates of other universities will be welcomed.

THE annual dinner of the West London Medico-Chirurgical Society will take place at the Wharncliffe Rooms, Great Central Hotel, on Wednesday, Feb. 8th, at 7 o'clock. Communications should be addressed to Dr. A. Elliot, 11, Upper Berkeley-street, London, W.

THE fourth meeting of the Bristol Medico-Chirurgical Society was held in the Medical Library, University College, Bristol, on Jan. 11th, when Professor T. Clifford Allbutt delivered an address to a full meeting of members and visitors on the Prevention of Apoplexy.

A TELEGRAM from the Governor of the Mauritius received at the Colonial Office on Jan. 13th states that for the week ending Jan. 12th there were 8 deaths notified from plague.

His Majesty the King has accepted a copy of Mr. F. J. Gant's "Autobiography" which has just been published.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 20, 1827.

During the Peninsula war, the superior anatomical, and of course, chirurgical, knowledge of those army surgeons educated in Dublin, soon attracted the notice of the distinguished individual placed at the head of the Army Medical Establishment; and with a conscientious and honest discharge of the high trust reposed in him, he advanced those men in rank and responsibility, upon whose professional knowledge, when so much was at stake, most reliance could be placed, no matter what was their previous patronage, country, or religion. Those alone were selected who were most capable of affording the best chance of life or limb to the wounded soldier; and in consequence, numbers of our countrymen, educated in this city, and filling subordinate situations in the army, were advanced with rapidity to posts of responsibility, rank, and emolument. This naturally opened the eyes of many to the superior advantages afforded by Dublin for the acquisition of surgical and anatomical knowledge; and we have had consequently, since the war, a number of pupils from England and Scotland, annually resorting to our schools, which I shall venture to predict will every year increase.

Unfortunately, our own foolish ordinations have interfered to mar the progress of Dublin as a school of anatomy and surgery. It is natural, and a matter of course, that pupils should wish to receive their diplomas of qualification from those constituted bodies under which they have been educated, and from the hands of those professors and seniors who have observed the progress that each has made in the acquisition of medical and surgical knowledge.

This very natural and laudable desire is completely baffled by the Charter of the College of Surgeons in Ireland, which enacts that no person shall be admitted to an examination who has not served an apprenticeship to a regularly educated surgeon; and this is the *only test* of qualification demanded from the pupil by this corporation charter. *No* attendance upon lectures, *no* attendance upon hospitals, *no* dissections, are required by the framers of this wise sample of legislation; and, in fact, at this very moment, in point of law, the President and Examiners are bound to examine any man, no matter whether he has ever been inside the walls of an hospital or lecture-room,—if he has only served an apprenticeship to what is designated a regularly educated surgeon, he may demand an examination.

But the framers of the Charter forgot in their wisdom to define what are the qualifications which render a man a regularly educated surgeon. Their successors, I presume, taking it for granted that the only qualification to make a regularly educated surgeon is an apprenticeship to one, demanded from every pupil who had not been an apprentice to a Licentiate or member of the College of Surgeons in Ireland, sufficient documentary evidence that his master not only had been a regularly educated surgeon, but that he had also served *his* time to a regularly educated surgeon; and thus I have known the time of the Court of Examiners occupied, day after day, examining the genealogy of a candidate, even to his professional *great great grandfather*.'[1]

THE ARMY MEDICAL SERVICE OF GREECE.

BY F. HOWARD, M.D. ST. AND.,
COLONEL, ARMY MEDICAL STAFF (RETIRED).

GREECE, although one of the smaller States, has a well-organised Army Medical Service. The normal army in 1896 consisted of 24,877 officers and men but all able-bodied males, aged 21 years and upwards, are liable to serve. The army in 1903 consisted of 1876 officers, 4670 non-commissioned officers, and 15,795 men.[2] The regulations for the Grecian Army Medical Service deal with a variety of matters connected with *personnel*, hospitals, distribution of sick, provisions for chemical analysis and micro-biological researches, supply, nursing, &c. There is a special health department under the Ministry of War which deals with the organisation and mobilisation of both the sanitary and veterinary services, the supply of *matériel* for ambulances, medicines, and surgical instruments, and the management of health establishments with their *personnel*.

Military hospitals.—These are of the first and second class, according to the strength of the corps which garrison the town. In 1902 the military hospitals of Athens, Larissa, Missolonghi, and Triccala were decreed first-class hospitals as each of the three first named was the headquarters of a division of two brigades and the last named was a brigade headquarters. Each first-class hospital is under the superintendence of a surgeon-lieutenant-colonel who is the "director." The higher *personnel* is composed of a surgeon-major (sub-director), two surgeon-captains, one surgeon-lieutenant, one apothecary with the rank of major, one apothecary ranking with lieutenant, two apothecaries as sub-lieutenants, and one captain for supply. Hospitals of the second class exist in Corfu, Arta, Tyrnavos, and Nauplia under a surgeon-major who is the director, one surgeon-captain (sub-director), one surgeon-lieutenant, two sub-lieutenants, one apothecary with the rank of captain, two apothecary sub-lieutenants, and one lieutenant for supply.

The hospital and infirmary service is performed by military medical officers and apothecaries varying in number according to the importance of the establishment. These are assisted by a staff composed of administrative or "economical" officers, civilians, and military of lower grade hospital orderlies and bearers. The *personnel* of these hospitals number in all 159 medical officers and apothecaries, many "economical" officers, subordinate employés, and two hospital orderly and bearer companies. At each divisional hospital there exist a depôt for drugs and surgical instruments and a chemical and bacteriological laboratory. There is a medical school at Athens for the fuller instruction of medical officers.

Hospital orderly and bearer companies.—There exist two companies. The recruits are drilled as soldiers first and also receive a six months' course of instruction from the military medical officers in their special duties. After this they are obliged to pass an examination, the successful candidates being drafted into the Hospital Orderly Company and assuming forthwith their duties at the different hospitals and infirmaries, while the unsuccessful pass into the bearer companies.

Rank.—The highest rank obtainable in the Military Medical Service of Greece is that of medical inspector-general who ranks with a colonel. The highest rank obtainable by apothecaries is that of lieutenant-colonel;

[1] Excerpt from "Introductory Lecture to a Course of Surgery, delivered at the Richmond Hospital by Mr. Carmichael, president of the Royal College of Surgeons, Dublin."

[2] Since writing the above I have seen that the Hellenic Chamber of Deputies has just passed a new law by which military service for all adult males will be, in the future, for 12 years, of which two will be with the colours. The new regulations provide for an army of from 120,000 to 130,000 men on a war footing. The three divisions on the peace establishment will swell in war to six, each containing two infantry brigades, two battalions of *chasseurs à pied*, one regiment of artillery, one regiment of cavalry, one battalion of engineers, with military train, field hospital, ammunition park, &c. Each infantry regiment consists of three battalions, each artillery regiment of from eight to six gun batteries, and in war each infantry division is joined by an artillery regiment of four batteries. In peace, as in war, the Greeks possess six mountain and three heavy gun batteries. The new law provides for a reserve of officers, the formation of a staff corps, and provision for a war chest.

and the highest rank in the Veterinary Service is that of major.

Medical and veterinary services.—The peace establishment is: 2 medical inspector-generals, 7 inspectors (of the rank of surgeon-lieutenant-colonel), 10 surgeon-majors, 34 surgeon-captains, 45 surgeon-lieutenants, 32 surgeon sub-lieutenants, 1 apothecary-in-chief, 3 apothecary majors, 9 apothecary captains, 7 apothecary lieutenants, 9 apothecary sub-lieutenants, 1 veterinary surgeon-in-chief, 8 veterinary captains, 4 veterinary lieutenants, and 4 veterinary sub-lieutenants.

War organisation.—In war time time the Field Sanitary Department is divided into: (*a*) Field surgeons accompanying corps. (*b*) Provisional hospitals to which the patients of the field surgeries or hospitals are transferred. (*c*) Depôts for medical stores. The Central Depôt is at Athens and other depôts are at Volo, Santa Maura, and Piræus. (*d*) The ordinary base hospitals. The field surgeries or hospitals and the provisional hospitals are under the immediate direction of a headquarters medical staff (*archiatrion*) which is again under the orders of the general or colonel commanding the corps.

The following is the constitution of the Headquarters Medical Staff: 1 surgeon-lieutenant-colonel, 1 surgeon-lieutenant, 1 apothecary lieutenant, 1 "economical" (supply) officer, 1 lieutenant for transport of the medical service, 1 assistant surgeon, 1 sergeant, 2 corporals, 1 corporal for transport service, 8 soldiers, and 8 mules. The field surgeries or hospitals are first, second, third, and fourth class according to the number and importance of the corps which they accompany in the field. A fourth-class surgery is capable of accommodating 40 men.

The provisional hospitals.—These are of the first and second class and their *personnel* is, so far as possible, the same as the first- and second-class ordinary divisional hospitals. The accompanying table gives at a glance the *personnel* of the headquarters and first-, second-, third-, and fourth-class surgeries:—

—	Headquarters surgery, 16,000 to 20,000 men.	First-class surgery, 8000 to 16,000 men.	Second-class surgery, 4000 to 8000 men.	Third-class surgery, 2000 to 4000 men.	Fourth-class surgery, 2000 men.
Surgeon-lieutenant-colonel	1	—	—	—	—
,, major	2	1	—	—	—
,, captain	4	2	1	—	—
,, lieutenant	8	4	2	—	—
,, sub-lieutenant	16	8	4	2	1
Assistant surgeon	16	8	4	2	1
Apothecary lieutenant	2	1	—	—	—
,, sub-lieutenant	8	4	2	1	—
Assistant apothecary	8	4	2	1	1
Supply officer or steward, "economical" officer	2	1	—	—	—
Sergeant-major assistant to above officer	16	8	4	2	1
Sub-lieutenant transport	1	—	—	—	—
Surgeon-major ,,	2	1	—	—	—
Sergeant hospital orderly	16	8	4	2	1
Corporal ,, ,,	32	16	8	4	2
Sub-(lance-)corporal hospital orderly	32	16	8	4	2
Sergeant transport	2	1	—	—	—
Corporal ,,	16	8	4	2	1
Sub-(lance-) corporal transport	8	4	2	1	1
Corporal farrier	2	1	—	—	—
Assistant ,,	4	2	1	1	—
Corporal saddler	4	2	1	1	—
Assistant ,,	4	2	1	1	—
Corporal blacksmith	4	2	1	1	—
Assistant ,,	4	2	1	1	—
Corporal carpenter	2	2	1	1	—
Assistant ,,	2	2	1	1	—
Corporal ("economic") steward	16	8	4	2	1
Hospital orderlies and bearers, soldiers	320	160	80	40	20
Soldiers and drivers	334	167	84	41	21
Horses	11	5	1	—	—
Mules	334	167	84	41	21

Military infirmaries exist in Ithaca, Santa Maura, Zante, Pitras, Amphissa, Agrinion, Ogina, Colambaku, Carvassara, Carditza, Corinth, Pyrgo, Sparta, Tripoli, Lyra, and other places.

Uniform.—The medical officers have a blue-black tunic with reddish-lilac velvet collar; blue-black trousers; and blue-black cap with lilac velvet band. Non-commissioned officers and men of the hospital orderly and bearer companies are dressed like the infantry with the Geneva cross on the arm. The badges of rank are as for infantry.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Jan. 8th, Mr. JOHN TWEEDY, the President, being in the chair.

Mr. Bernard Pitts was introduced and having made a declaration in the terms of the oath prescribed by the Charter of 1800 he was readmitted a member of the Court of Examiners.

The SECRETARY reported the death on Dec. 19th, 1904, at the age of 49 years, of Mr. A. Quarry Silcock, member of the Court of Examiners. A vote of condolence with the members of his family was passed.

The PRESIDENT stated that the vacancy in the Court of Examiners occasioned by the death of Mr. Silcock and the vacancy caused by the expiration of the period of office of Mr. W. H. A. Jacobson would be filled up at the next ordinary meeting of the Council on Feb. 9th.

It was resolved to refer to the Museum and General Purposes Committee to consider and to report upon the question of permanently installing the electric light in the museum.

A report was read from the President and the Vice-Presidents on the proposed foundation of scholarships in memory of the late Mr. E. Percy P. Macloghlin, M.R.C.S. The report was approved and adopted and it was resolved that the best thanks of the Council should be given to Mrs. Macloghlin for her munificent offer and that she should be informed that the Council gratefully accepts the trust and agrees to administer it upon the conditions mentioned in the report. The amount to be given to the trust of the College is £10,000.

The Council proceeded to discuss the case of a Member who had been removed from the Medical Register by the General Medical Council and after deliberation it was resolved that his name should be removed from the list of Members of the College.

The PRESIDENT reported that on behalf of himself and the Vice-Presidents, in pursuance of the authority given to them by the Council, they had appointed Dr. H. Timbrell Bulstrode to represent the College at the Conference on School Hygiene arranged by the Royal Sanitary Institute to be held in London from Feb. 7th to 10th, 1905.

Mr. Edmund Owen presented to the College on behalf of Mr. Edward Atkinson, M.R.C.S., of Leeds, six saws invented and used by Hey for operations on the skull. Its best thanks were voted by the Council to Mr. Atkinson for his very interesting gift.

A letter was read from the secretary of the Queen Victoria's Jubilee Institute for Nurses reporting the expiration in February next of Mr. T. Bryant's period of office as a member of the council of the institute and inquiring whether Mr. Bryant is to remain the representative of the College on the council of the institute for the next three years. The consideration of the matter was postponed.

A letter was read from the honorary secretaries to the committee for organising the visit of French physicians and surgeons to London expressing the thanks of the executive committee for the cordial reception extended by the President and the Council of the College to the French physicians and surgeons on the occasion of their visit to the College.

A letter was read from the Registrar of the General Medical Council reporting the adoption by that Council of the following resolution, in addition to the eight resolutions in regard to preliminary scientific education and examination adopted at the May session:—

That the synopsis or syllabus in elementary biology should include as necessary subjects of study the fundamental facts of vegetable and animal structure, life-history, and function, as exemplified by specified

types of cryptogamous plants (including bacteria) or protozoa and of at least four of the higher animal groups, and the outlines of embryology.

Mr. G. H. MAKINS moved:—

That a committee be appointed to consider and report upon the practicability of the institution by the College of a school for the teaching of the early and intermediate subjects of the medical curriculum and advanced pathology.

The consideration of the matter was postponed.

CHICAGO.

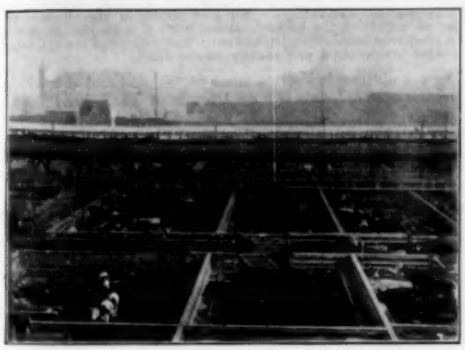
TUBERCULOSIS AMONG THE STOCKYARD WORKERS.—SANITATION IN PACKINGTOWN.—THE POLICE AND THE DUMPING OF REFUSE.—VITAL STATISTICS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(Continued from p. 123.)

THERE is at Chicago a city committee which has been formed to deal with the question of tuberculosis and to devise measures for combating this disease. As there are more cases of tuberculosis in the Stockyard district than in any other part of Chicago, Dr. Hedger, who is a member of this committee, was appointed to inquire into the matter. Within the district of four miles square, of which one square mile is occupied by the stockyards and the other three square miles are inhabited by the people who work in the stockyards, 200 deaths from tuberculosis had been recorded during a period of two years

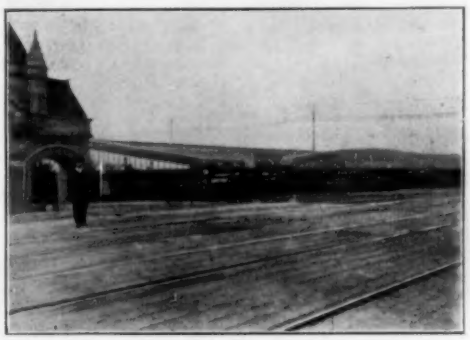
FIG. 7.



Bird's-eye view of the cattle pens with cattle-run in the background. View from the chief inspector's office.

and five months. Dr. Hedger started on the inquiry expecting to find that there were special streets and special groups of houses where the disease prevailed in such an abnormal manner as to show that the dwellings themselves were absolutely unhealthy and dangerous. Therefore cards were printed, one for every house, and on these cards a systematic record was to be kept. The number of families, of sleeping rooms, and the total number of inhabitants in each house had to be inscribed carefully. But it was soon found that the houses were not in a bad condition. There were isolated cases of overcrowding but it was not general. In other parts of Chicago where tuberculosis is not so prevalent the overcrowding is more general and very much worse. Sometimes there were too many sleeping in one room but the houses were fairly clean. In the whole of the district there is only one house that is four storeys high. The houses are more like cottages and, as already stated and shown by reproductions of photographs, there is plenty of air space around them. There is hardly a house to be found which touches another house though the space between them may at times be only three feet, and this is insufficient when it is sought to obtain through windows light and air from such side passages. Then it was also ascertained that no two deaths from tuberculosis occurred in the same house during the two and a half years of close observation. But on going further back the former history of some of the dwellings showed that there had been several cases in one and the same house; indeed, there was one house in particular which seemed to be infected. Of course, the homes of the stockyard workers are far from perfect. For instance, they are not provided with bathrooms and the supply of public baths is altogether insufficient. Again there is the old

FIG. 8.



Main entrance to stockyards, showing cattle-run ascending from level of railway line to the second floor of the meat factory.

grievance that the inhabitants do not ventilate their houses sufficiently. But these are defects which exist in all poor quarters. Neither the houses nor their inmates can be said to be worse than elsewhere. Dr. Hedger, after living amid these people and spending much time in their homes, considers that their chief defect is the unsuitable nature of their food. They are very fond of sweetened bread and coffee, whereas porridge and wholemeal bread would be more likely to prevent the present excessive frequency of anæmia.

Of course, when a population grows with great rapidity on a spot which has never been inhabited before it requires emphatic local by-laws and a very energetic sanitary authority to see that proper sewers and an ample water-supply are provided before houses are built. In Packingtown the paving of streets has been very generally neglected and in some districts houses were built before sewers had been constructed. Consequently the inhabitants here and there have suffered from the nuisance inseparable from cesspits. The same objection obtains in most rural districts where, nevertheless, there is the lowest death-rate. The nuisance of a cesspit is amply compensated for by the advantage of living on virgin soil and the fact that the whole of Packingtown is built on soil which had not been inhabited previously must be carefully borne in mind. It explains why the fatal consequences of insanitary conditions have not as yet made themselves felt more emphatically. Worse by far than the few cesspits, which are being replaced by sewers, is the foul condition of a branch of the Chicago river. Here the sewage from the stockyards causes a thick crust of filth to accumulate on the surface of the water which is foul in the extreme. Fortunately there are very few habitations in close proximity to this festering nuisance. The land on both sides of the river is vacant and where utilised it is for the purpose of railway traffic and not for habitations. So here again what might be a cause of ill-health does not produce all the mischief which, in other circumstances, would undoubtedly ensue.

Another local grievance is the fact that some old clay brick-fields are now used as a dumping ground for refuse collected, not only in the district but from other and distant quarters of Chicago. This ground and this enterprise belong to a town councillor and therefore it is but natural to expect that the business will be carried out without creating a nuisance. Nevertheless it is difficult to believe that this is actually the case, for a member of the city police is kept to watch the spot and to drive away persons of an inquiring mind, especially if they belong to the press. Perhaps it might

be well to raise a question on behalf of the inhabitants of Chicago and to ask whether it is their desire that their money should be employed to pay policemen to prevent the truth from being known in regard to matters concerning the public health. In spite, however, of the policeman a photograph is here reproduced which I took while menaced by the terrors of the law. The dumping is done without any sorting

FIG. 9.

View over the dumping ground of the town refuse. Packingtown and the stockyard chimneys are in the distance. To the left, not distinguishable, is an ice factory.

and from open carts. Therefore the dust and lighter articles are blown away for a distance of about a quarter of a mile around. The heavier rubbish is gradually filling up the holes made by digging out the clay which was used in the manufacture of bricks and it is quite evident that houses will ultimately be built on this refuse. If the policeman is there to see that no building is attempted on the top of such a foul accumulation there would be some sense in it. Unfortunately, it is pretty evident that the object of his presence is to prevent the inhabitants of Chicago from knowing how unhealthy and artificial a subsoil is being prepared for their future dwellings. In the meanwhile a considerable part of the dust, rags, and paper is blown about and makes the surrounding fields look quite white. On one side of this large open space and within easy reach of the dust there are a pond from which the ice is taken and sold and a building for the trade in ice.

It is in this neighbourhood also that the houses are not yet connected with the sewers and indeed the whole district looks wild. But few streets have any semblance of pavement. The backs of the houses abut on to bare uneven earth. The cinders and refuse are thrown into dustbins made of a few planks roughly put together so that a good deal escapes and is blown about; fortunately there is plenty of wind and of open space for it to undergo the process of natural purification. Outside the houses there are sorts of terraces made of wooden boards which are sometimes as high as three feet above the street. These serve as causeways where people can walk well above the mire of the unpaved street. In a word this part of the city is not built. Some of the houses have been constructed before the ground was properly laid out and prepared. Still the water-supply is there and in most places there are sewers also. It is this newness which for the time being saves the situation and accounts for the comparatively favourable character of the vital statistics. The very worst part of the whole district does not contain more than 113 inhabitants to the acre and there is only one acre where the population is equal to this. At the commencement of the year 1901 Chicago was mapped out into 15 sanitary divisions. The following is the official description given by the town authorities of the Stockyard district.

The eleventh division comprises 7120 acres with a population of 282,980, largely of foreign birth. ..... This is the "packing-house" district in which are located the union stockyards, abattoirs, large packing houses, and kindred industries, with the working people employed therein and their families. Ground low and only partly drained; long settled in the northern part and of recent development along the south-west border. The northern half is bisected by the south fork of the south branch—an open sewer for the highly charged drainage of the industries congregated along its borders. In the longer settled northern part the sanitary conditions are poor, the dwellings old and of cheap construction. These conditions improve to the south where the recent increase of population is better housed.

This description must be taken comparatively, bearing in mind that nothing is really old in Chicago. It shows that the population only amounts to 35 per acre. In the Bowery district of New York, round about Rivington-street, the population is close upon 1000 per acre. In London there are places where about 400 persons are packed on an acre of ground, while in the very worst part of the Stockyard or Packingtown district of Chicago the population does not exceed 113 and the average of the district is only 35 to the acre. This is a fundamental fact and it must be carefully borne in mind. Precisely how far it has affected vital statistics no one can say. In any case there is the corresponding fact that the death-rate is low. The question remains whether in such very favourable circumstances it ought not to be lower still.

The department of health has issued a volume giving many figures relating to the new division of the city into 15 sanitary districts. Here we find the population of Chicago estimated for the year 1901 at 1,758,025 and the death-rate at only 13·88 per 1000. Then the actual number of deaths in the 15 sanitary divisions is given but not the proportional figures. However, in another document issued in February, 1901, the population per division is given, and here it is stated that in the eleventh or Packingtown division the population was 252,980. The number of deaths being 3466, this would be 13·64 per 1000, or a trifle less than the average for the whole city. From the descriptions given it would appear that the fifth, the sixth, and the fifteenth are the most insanitary districts of Chicago. Of the fifth division we are told:—

It embraces some of the most densely populated and poorest-housed areas in the city. The former sixteenth ward in the northern part of this division had a population of 148 to the acre in 1900. The eighteenth ward is essentially a lodging-house district with a shifting population—crowded in winter, sparse in summer—largely adults without steady occupations. The population of the division as a whole, is mainly of the poorest classes, with a large foreign element and a relatively large child population. The dwellings are old, largely of wooden construction, and usually overcrowded.

The population being set down at 466,052 and the number of deaths at 6962, this is a death-rate of 14·7 per 1000, and indicates that the insanitary conditions described were telling on the population, though if these figures are trustworthy the inhabitants still enjoyed for a large town an exceptionally low death-rate.

Of the sixth division we are told:—

This is the poorest and most densely populated area of the north side, having a population of 125,875 mainly of foreign birth.

As the number of deaths was 1789 this equals a death-rate of 14·21 per 1000. In regard to the fifteenth district the official description says:—

The area is chiefly of low ground, poorly drained, and the general sanitary conditions are exceedingly unfavourable. The habitations are principally old wooden structures.

The population was 50,800, the number of deaths 751, or a death-rate of 14·7 per 1000.

Such was the situation in 1901 and it will be seen that what were described as the worst districts had a slightly higher death-rate while Packingtown enjoyed the low death-rate which the abundance of open spaces should confer. In the short space of two years a remarkable change may, however, be noted. Though the board of health takes upon itself to increase its estimate of the population of Chicago to 1,873,880 it will be found that the death-rate has augmented considerably, for instead of 13·88 per 1000 it is now put down at 15·42 per 1000. The increase of deaths is much greater in proportion than that of the population. Unfortunately, I have no estimate as to the distribution in the 15 sanitary divisions of the 115,855 new inhabitants of Chicago. The number of deaths per division which occurred in 1903 is given and if calculated on the basis of the population as given in 1901 then the death-rate per 1000 has increased from 14·7 to 17·8 in the fifth division, from 14·21 to 15·98 in the sixth division, and from 14·7 to 15 5 in the fifteenth division. In the eleventh division, the Packingtown district, the increase is from 13·64 to 17·76, and in spite of the figure just given for the fifth division the general opinion or impression I found prevalent in Chicago is that the death-rate is higher in Packingtown than in any other part of the city. Unless the population of Packingtown has greatly increased in the two years mentioned this would now seem to be the case; at least, it

can be said that the death-rate is as high in Packingtown or the eleventh division as in the fifth division and that in these two districts the death-rate exceeds considerably that of the average for the whole of Chicago. Then there remains this important argument, that if the higher death-rate in the fifth division be explained by reason of insanitary conditions prevailing in that district, the poverty, thriftlessness, and uncertain earnings of its inhabitants, the same argument does not apply to the eleventh division or Packingtown. Dr. Hedger, in dealing with the fact that there were proportionately more cases of tuberculosis in Packingtown than in other parts of Chicago, started with the impression that the homes of the inhabitants would be found in a more insanitary condition than in other parts of the city. A lengthy and minute investigation proved that in other parts of Chicago the overcrowding and the insanitary conditions of the dwellings were much worse. Therefore, if the homes are better and nevertheless the death-rate is higher, then it is the character of the work which does the harm. This, especially in regard to tuberculosis, would not be the first time a similar condition has been discovered. It has been demonstrated on a much larger scale by the comparison of the reduction in the prevalence of tuberculosis in England and in Germany. In England more women and in Germany more men have benefited. The explanation of this difference is simple. In England our improvements have in the main effected the sanitation of private dwellings and this is where most women work and spend their time. In Germany the law enforcing the insurance of all the working classes has led to greater improvements in the sanitation of factories and workshops and has therefore proved of more benefit to men than women. Conditions that favour the spread of tuberculosis also favour many other diseases and in Packingtown these conditions are to be found in the work that the people do rather than in any exceptionally insanitary dwellings. On the contrary, the people are much better housed than is generally the case with that class of worker.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 9044 births and 5251 deaths were registered during the week ending Jan. 14th. The annual rate of mortality in these towns, which had been 19·4, 22·4, and 19·9 per 1000 in the three preceding weeks, further declined to 17·5 per 1000 last week. In London the death-rate was 15·8 per 1000, while it averaged 18·3 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 7·6 in Willesden, 8·1 in Hornsey, 8·6 in Hastings, 10·1 in Reading, 10·5 in Leyton, 11·0 in Handsworth (Staffs.), and 11·2 in Walthamstow; while the highest rates were 24·3 in Newport (Mon.), 26·5 in Middlesbrough, 26·7 in Warrington, 27·6 in Swansea, and 35·8 in Stockton-on-Tees. The 5251 deaths in these towns last week included 378 which were referred to the principal infectious diseases, against 399, 475, and 399 in the three preceding weeks; of these 378 deaths, 114 resulted from measles, 86 from whooping-cough, 60 from diphtheria, 42 from scarlet fever, 40 from diarrhœa, 31 from "fever" (principally enteric), and five from small-pox. No death from any of these diseases was registered last week in Hornsey, Hastings, Brighton, Southampton, Ipswich, Handsworth (Staffs.), Smethwick, Aston Manor, Wallasey, Warrington, Rotherham, and Newport (Mon.); while the highest death-rates from the principal infectious diseases were recorded in East Ham, Nottingham, Bury, Middlesbrough, Stockton-on-Tees, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Bristol, Nottingham, Liverpool, Wigan, Stockton-on-Tees, Cardiff, and Merthyr Tydfil; from diphtheria in East Ham, Northampton, King's Norton, and Stockton-on-Tees; from whooping-cough in Grimsby, Huddersfield, Hull, and South Shields; from "fever" in Bury; and from diarrhœa in Middlesbrough. The mortality from scarlet fever showed no marked excess in any of the large towns. Of the five fatal cases of small-pox registered in these towns last week one belonged to London, one to Oldham, one to Bradford, one to West Hartlepool, and one to South Shields. The number of small-pox cases under treatment in the Metropolitan Asylums hospitals, which had been 14, 17, and 18 at the end of the three preceding weeks, had further risen to 19 at the end of last week; one new case was admitted during the week, against nine, five, and one in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, on Saturday, Jan. 14th, was 2192, against 2394, 2387, and 2308 on the three preceding Saturdays; 194 new cases were admitted during the week, against 242, 201, and 187 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 416, 521, and 443 in the three preceding weeks, further declined last week to 301, and were 107 below the number in the corresponding period of last year. The causes of 61, or 1·2 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Portsmouth, Salford, Leeds, Newcastle-on-Tyne, Cardiff, and in 44 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Warrington, Blackburn, Preston, Sheffield, West Hartlepool, Sunderland, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 21·2, 21·6, and 20·6 per 1000 in the three preceding weeks, rose again to 21·6 per 1000 during the week ending Jan. 14th, and was 4·1 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·4 in Paisley and 15·6 in Greenock, to 23·9 in Glasgow and 27·7 in Aberdeen. The 723 deaths in these towns included 45 which were referred to whooping-cough, 16 to diarrhœa, 12 to measles, five to diphtheria, four to "fever," and three to scarlet fever. In all, 85 deaths resulted from these principal infectious diseases last week, against 90, 78, and 79 in the three preceding weeks. These 85 deaths were equal to an annual rate of 2·5 per 1000, which was 1·2 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 31, 40, and 37 in the three preceding weeks, rose again last week to 45, of which 38 were registered in Glasgow, four in Edinburgh, and two in Perth. The deaths from diarrhœa, which had been 12 and 13 in the two preceding weeks, further rose to 16 last week and included 11 in Glasgow and three in Dundee. The fatal cases of measles, which had been 19, 20, and 14 in the three preceding weeks, further declined last week to 12, of which seven occurred in Aberdeen and four in Glasgow. The deaths from diphtheria, which had been two and four in the two preceding weeks, further rose to five last week, and included two in Glasgow and two in Edinburgh. The fatal cases of "fever," which had been eight, two, and eight in the three preceding weeks, declined again last week to four, all of which were registered in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 174, 184, and 182 in the three preceding weeks, were 183 last week, and were 15 below the number in the corresponding period of last year. The causes of 21, or nearly 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 24·5, 25·0, and 25·6 per 1000 in the three preceding weeks, declined again to 22·6 per 1000 during the week ending Jan. 14th. During the past four weeks the death-rate has averaged 24·4 per 1000, the rates during the same period being 18·2 in London and 18·5 in Edinburgh. The 164 deaths of persons belonging to Dublin registered during the week under notice were 22 below the number in the preceding week, and included 21 which were referred to the principal infectious diseases, against 12, 26, and five in the three preceding weeks; of these, 12 resulted from measles, four from diarrhœa, two from diphtheria, one from scarlet fever, one from whooping-cough and one from "fever." These 21 deaths were equal to an annual rate of 2·9 per 1000, the death-rates last week from the same diseases being 1·0 in London and 1·4 in Edinburgh. The fatal cases of measles, which had been ten, 16, and three in the three preceding weeks, rose again

last week to 12. The deaths from diarrhœa which had been one, six, and one in the three preceding weeks, rose again to four last week. The 164 deaths in Dublin last week included 32 of children under one year of age and 44 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a slight decline from the numbers recorded in the preceding week. Six inquest cases and three deaths from violence were recorded; and 65, or nearly two-fifths, of the deaths occurred in public institutions. The causes of 11, or nearly 7 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: H. X. Browne to the *Vivid* for Devonport Yard and H. S. R. Sparrow to the *Cambridge*. Staff Surgeons: E. C. Cridland to the *Forte*, on recommissioning; A. E. Kelsey to the *Scylla*; and E. T. Meagher to the *Fire Queen* for the *Hercules*, for voyage to Gibraltar. Surgeons: W. B. Macleod to the *Hermione* for voyage to Ascension and back; G. C. C. Ross to the *Leviathan* and on replacing the *Bacchante*; L. Lindop and F. E. Anley to the *Bacchante* for passage home; G. H. S. Milln to the *Fire Queen* for disposal; E. A. G. Wilkinson to the *Vivid* for disposal; R. Hughes to the *Penguin*, additional, and on recommissioning; H. C. Ross to the *Ganges*; A. F. Fraser to the *Surprise*; E. Folliott to the *Imogene* on recommissioning; G. Ley to the *Flora* on commissioning; N. J. Roche to Plymouth Hospital; F. R. Featherstone to the *Fire Queen* for disposal, lent to the Royal Naval College, Osborne; and E. Cox to the *Pembroke* for disposal.

ROYAL ARMY MEDICAL CORPS.

Lieutenant H. B. Connell is seconded for service under the Foreign Office (dated Dec. 31st, 1904). Captain C. J. O'Gorman, D.S.O., from the Seconded List, to be Captain (dated Jan. 1st, 1905). Captain P. G. Stock resigns his commission (dated Jan. 14th, 1905).

VOLUNTEER CORPS.

Rifle: 5th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Captain T. Wood resigns his commission (dated Jan. 14th, 1905). 3rd (Dundee Highland) Volunteer Battalion the Black Watch (Royal Highlanders): Edward Fox MacLeod Neave to be Surgeon-Lieutenant (dated Jan. 14th, 1905). 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): The undermentioned Surgeon-Lieutenants to be Surgeon-Captains: H. Allan (dated Jan. 14th, 1905) and J. H. Maclean (dated Jan. 14th, 1905).

DEATHS IN THE SERVICES.

Sir James J. L. Donnet, K.C.B., Inspector-General of Hospitals and Fleets, R.N. (retired), on Jan. 13th, at Bognor, in his eighty-ninth year. He entered the Royal Navy in 1840, became fleet surgeon in 1845, deputy inspector-general in 1867, inspector-general in 1875, and retired in the following year. He was present in the *Vesuvius* at the operations on the coast of Syria and at the siege and fall of the fortress of St. Jean d'Acre, and he had charge of the Hospital at Acre after the fall of that place (war medal, Syria clasp, and Turkish medal). Later he acted as secretary to the diplomatic mission sent by the British Government to the Sultan of Morocco and was in medical charge at the successful capture and destruction of the town of Ngunduvan, in Viti Levu, Fiji. He served in the Arctic Expedition in 1850–51 (*Assistance*) when the first footsteps of Franklin were discovered (Arctic medal) and was senior medical officer of the flagship *President* at the attack of the allied squadrons on the stronghold of Petropaulowski, in Kamschatka, in 1854, and at its dismantling in 1855. He was in administrative and executive charge of Port-Royal Hospital, Jamaica, during the epidemic of yellow fever of 1867 and 1869. He was principal medical officer in charge of medical wards of Royal Naval Hospital, Haslar, during the epidemics of small-pox and enteric fever and cases of fever and dysentery after the Ashantee war in 1873–74, and in administrative and executive charge of Royal Naval Hospital, Malta, in 1874. In 1877 he was appointed a member of the committee appointed to inquire into the causes of the outbreak of scurvy in the Arctic Expedition under the command of Sir George Nares, K.C.B. He was awarded the good service pension in 1878, the Diamond Jubilee medal in 1897, and the Coronation medal in 1902. He was appointed honorary surgeon to Her late Majesty Queen Victoria in 1870 and honorary physician in 1893.

THE WAR IN THE FAR EAST.

Since writing last week on this subject many events of much moment have taken place although none of them can be said to have any special medical interest. The Czar has issued an order of the day in which he announces the fall of Port Arthur, pays a tribute to Russian valour, and points to the past history of Russia as giving an assurance of the ultimate victory to his Imperial Majesty's troops and fleets. What is the truth about Port Arthur and the circumstances leading up to its surrender are matters which have yet to be determined. According to the statements now put forward the surrender was an inglorious end to the siege. It is alleged not to have been brought about by want of ammunition and scarcity of food or the loss of positions. It seems clear from the accounts which have been published that the physical plight of the Russians in Port Arthur was, after all, far better than that of General Sir George White's army at Ladysmith at the time of its relief. It is stated that the Japanese were told at first that only 4000 unwounded men remained but the number proved to be 24,000, who have been actually shipped to Japan. A large number of them were suffering from scurvy or were very slightly wounded but there was no sign of their having starved. The hospital supplies had, however, failed. It is, meanwhile, very ungenerous to seek to belittle the spirit and the deeds of the Russian garrison until all the facts are better known than is now the case.

As regards the belligerent armies in Manchuria the state of relative inaction still continues. There has, indeed, been a big cavalry raid on the part of the Russians, but it practically led to no results so far as the objects in view were concerned, the Cossack force being repulsed with much loss by the Japanese. There is, if true, some rather ominous news of the failure of the Trans-Siberian railroad to meet all the requirements of the situation in Manchuria and of the increasing difficulty of supplying the material wants of General Kuropatkin's large army.

Correspondence.

"Audi alteram partem."

THE ORGANISMS OF VARIOLA, VACCINIA, AND VARICELLA.

To the Editors of THE LANCET.

SIRS,—As several of your correspondents have been discussing the characters of the organisms of variola and vaccinia the following case may interest them. It is interesting as proving that two specific fevers may coexist, that the protective effect of vaccination does not last for eight years, and that it is almost impossible to give an opinion with certainty in mild cases of variola.

I was treating a typical case of scarlet fever at the beginning of the small-pox epidemic here in 1901. Six days after I first saw him (during which time he was isolated) he developed some spots on the legs and the arms which became papular, vesicular, and pustular. I diagnosed variola. The diagnosis was confirmed by three other medical men. On careful cross examination of the boy I found that he had been visited on the second day of his scarlet fever confinement by an old friend who slipped into his room for a few moments unknown to the nurse. This man had been helping to disinfect a house in which several cases of small-pox occurred. The period between exposure and the appearance of the rash was therefore only five days. The boy was eight years of age and had good vaccination marks. There were no constitutional symptoms except a very slight rise of temperature when some of the spots became pustular.

When the scarlet fever appeared I advised the removal of a younger sister to a friend's house at the seaside. This child was about six years of age and had never been vaccinated. I vaccinated her on Oct. 9th, before the brother developed the scarlet fever on the 14th. On the 21st she left for the seaside, with a vaccination scar on her arm. On

the 26th the medical officer of health (having been warned to keep his eye on her) saw her and found a number of tiny vesicles with shotty feel on the forearms, wrists, and legs. These faded in a day or two. There were no symptoms. The child was not exposed to personal contact with the visitor who gave the disease to her brother, having been from home on that day. There was not any case traced to her afterwards, although she was only partially isolated. The probable explanation is that the spots were a delayed vaccination rash or a mild case of varicella.

I am, Sirs, yours faithfully,

Edmonton, Jan. 16th, 1905. H. G. JAMISON, M.D. R.U.I.

THE TREATMENT OF HÆMOPTYSIS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 20th (p. 522) and Oct. 1st (p. 942), 1904, under the head of "The Medical Treatment of Deep-seated Hæmorrhage," I contributed a series of eight cases in which 13 attacks of hæmoptysis (12 phthisical and one mitral) had been, with one exception, all stopped within three minutes by inhalation of amyl nitrite. In the exception the bleeding continued in reduced amount for ten minutes. Since writing the above I have received the following from Dr. E. Leslie Pooler of South Australia: "I have tried the amyl nitrite treatment for pulmonary hæmorrhage with complete success. On the night of Sept. 27th, at 11.30 P.M., I was called for the first time to see Mr. A., aged 45 (a tubercle case), who, I was told, had been bleeding since 10 P.M. There was about a pint of blood. Inhalation stopped the hæmorrhage almost instantaneously. On Sept. 28th, 29th, 30th, and Oct. 1st there were further hæmorrhages but each ceased immediately on the inhalation. There has been no further hæmorrhage since Oct. 1st."

In THE LANCET of Nov. 19th, 1904, p. 1446, I gave *a priori* reasons for believing that the internal administration of adrenalin would tend to exaggerate or to prolong hæmoptysis. These anticipations seem fully confirmed by the experimental work of Dr. T. G. Brodie and Dr. W. E. Dixon on the "Alterations in the Systemic Circulation which tend to produce Engorgement of the Lung Capillaries," communicated to the Pathological Society of London.[1] These investigators point out that there is no evidence that adrenalin produces any constriction of the vessels of the lung; that adrenalin produces engorgement of the lung; and further that ergot and digitalis both act similarly. Do not these facts all point to amyl nitrite inhalation as the rational treatment for hæmoptysis?

I am, Sirs, yours faithfully,

FRANCIS EVERARD HARE, M.D.

Gower-street, W.C., Jan. 16th, 1905.

THE CASE OF DR. A. D. GRIFFITHS.

To the Editors of THE LANCET.

SIRS,—In your issue of Dec. 17th, 1904, p. 1733, under the title "A Vile Conspiracy," you published an account of an important action which was tried at the Glamorgan assizes held at Swansea last month, the plaintiff being Dr. A. D. Griffiths of Bridgend, a member of the Cardiff division of the British Medical Association and of the Cardiff Medical Society. The outstanding facts of the case will still be fresh in the minds of your readers and it will be remembered that Mr. Justice Bray pointed out that Dr. Griffiths's actions had been correct in every particular and that in concluding his summing up the judge intimated to the jury that although the damages they might award would probably never be paid they ought to give some such sum as would show that in their opinion the charges were absolutely groundless. The jury, after a brief consultation, declared a verdict for Dr. Griffiths with £500 damages, or five times as much as he had asked for.

At a meeting of the South Wales and Monmouthshire branch of the British Medical Association subsequently held at Carmarthen a motion was passed unanimously expressing the sympathy of the branch with Dr. Griffiths in his painful experience and congratulating him on the way in which he had justified its faith in his unblemished character. A similarly worded motion was also unanimously passed at a joint special meeting of the Cardiff division and of the Cardiff Medical Society on Jan. 4th and also at a meeting of the Incorporated Society of Medical Officers of Health.

[1] THE LANCET, Dec. 4th, 1904, p. 1784.

At the joint meeting referred to it was made known that, as had been anticipated, none of the awarded damages will be realised by Dr. Griffiths and that his legal expenses for the action amounted to something like £205. It was strongly felt that an opportunity should be given to his fellow members of the profession and others to express their practical sympathy with Dr. Griffiths who with commendable courage and determination had successfully met so dangerous an attack not only on his own reputation but also on the *bonâ fide* status of the general practitioner.

A committee was accordingly appointed to establish a fund to defray the unavoidably heavy bill of costs. The committee consists of the chairmen and honorary secretaries of the Cardiff division of the British Medical Association and of the Cardiff Medical Society respectively, Dr. R. S. Stewart and Mr. W. Randall of Bridgend, with Dr. A. P. Fiddian, 23, The Walk, Cardiff, as treasurer. Donations to the fund will be gratefully received and acknowledged by the treasurer or by the undersigned.

We are, Sirs, yours faithfully,

THOS. WALLACE, M.D. R.U.I.,
Howard Lodge, Newport-road, Cardiff (Chairman, Cardiff Division, British Medical Association);
W. D. J. MORRIS, M.R.C.S. Eng.,
100, Crwys-road, Cardiff (President, Cardiff Medical Society);
R. S. STEWART, M.D. Glasg.,
Superintendent, Glamorgan County Asylum, Bridgend;
EWEN J. MACLEAN, M.D. Edin.,
12, Park-place, Cardiff (Honorary Secretary, Cardiff Division, British Medical Association).

Jan. 15th, 1905.

The treasurer begs to acknowledge the following donations already received or promised:—

	£	s.	d.		£	s.	d.
Dr. R. S. Stewart	2	2	0	Dr. W. Mitchell Stevens	1	1	0
Mr. W. Randall	2	2	0	Mr. Herbert Jones	0	10	6
Dr. D. R. Paterson	2	2	0	Mr. D. A. Fitzgerald ...	0	10	6
Dr. W. Campbell	1	1	0	Mr. J. W. Gill	0	10	0
Dr. P. Rhys Griffiths ...	1	1	0	Dr. A. P. Fiddian	1	1	0
Dr. Ewen J. Maclean ...	2	2	0	Dr. J. Biggs	0	10	6
Mr. F. W. S. Davies ...	0	10	6				

PRECOCIOUS LACTATION IN MALE INFANTS.

To the Editors of THE LANCET.

SIRS,—I think it is not yet generally recognised in the profession that the secretion of milk is natural in the newly born of both sexes. This physiological process attains its maximum between the eighth and fifteenth days after birth. That the process is a true lactation dependent upon the secretory activity of true acinous glandular structures has been proved histologically by De Sinétz,[1] Variot, Kölliker, Barfurth, and others. It is to abnormal persistence or recrudescence of this physiological process that such cases as that reported by Mr. R. M. McQueen in THE LANCET of Jan. 7th, p. 25, are due. This type of precocity is more frequently seen in female than in male children and it is generally, but not invariably, accompanied by other signs of precocious sexual development. I have elsewhere cited several cases of this kind.[2] In male children I have met with but very few similar examples. A typical case was, however, reported a few years ago by Rogers[3] and another by Dalziel.[4]

I am, Sirs, yours faithfully,

Clifton, Bristol, Jan. 7th, 1905. W. ROGER WILLIAMS.

CHLOROFORM ANÆSTHESIA COMPLICATED BY A FIT.

To the Editors of THE LANCET.

SIRS,—I have been kindly permitted by Mr. E. Michels, senior surgeon to the German Hospital, to recount this case. A man, aged 32 years, on Dec. 3rd, 1904, fell from his bicycle while smoking, owing, he said, to a sideslip, and the pipe-stem was driven into his tongue. He was not rendered unconscious. He obtained treatment but as he did not improve he came to the German Hospital on the evening of Dec. 8th

[1] Recherches sur la Mamelle des Enfants Nouveau-Nés, Archives de Physiologie, 1875, p. 295.
[2] Diseases of the Breast, p. 83; also British Gynæcological Journal, May, 1902.
[3] Brit. Med. Jour., vol. i., 1897, p. 29.
[4] Glasgow Medical Journal, June, 1894.

and was admitted. The following afternoon he was taken to the operating theatre in order that his condition might be thoroughly examined under an anæsthetic. His breathing at that time being considerably hampered by extensive swelling in the submaxillary region and of the tongue, the latter protruding somewhat between the teeth, I proceeded to administer chloroform by means of a drop bottle and Skinner's mask, very gradually and with a free supply of air. The patient appeared to take the anæsthetic well until the onset of the excitement stage, which, as Mr. Michels, who was standing by, remarked, took the form of a typical epileptic fit. I immediately withdrew the chloroform and in a few seconds the fit ceased, but with it respiration also, the patient quickly showing urgent signs of asphyxia. I advised immediate tracheotomy, which Mr. Michels at once performed, with the result that on just compressing the chest regular respiration was restored. An examination of his mouth was then made and the patient put back to bed. Shortly afterwards, in the presence of Mr. Michels, the patient had another apparent epileptic, fit, and again two hours later a third, remaining after each in a semi-delirious condition. He, however, died early the following morning, Dec. 10th, apparently from heart failure. There was no history of epilepsy or Bright's disease. The urine was not examined on admission as the patient did not pass any, having been without food or drink for some time previous to admission owing to difficulty in swallowing.

Post mortem the urine in the bladder was tested and found to contain one-fifth albumin, no sugar, and no blood; the kidneys were quite healthy, both to the naked eye and also microscopically; there were some congestion of the brain, œdema of the lungs, and some old pleural adhesions; all the other organs were healthy. There were an abscess in the tongue and purulent cellulitis of the neck.

The case, to my mind, is interesting for the following reasons: (1) What was the nature of the fits? Were they epileptic or were they uræmic? (2) Was the asphyxia the result of the fit or was it simply due to the condition of the man's neck and mouth?

I am, Sirs, yours faithfully,
ALEX. H. BREWER,

Jan. 13th, 1905. Honorary Anæsthetist to the German Hospital.

THE M.D. DEGREE OF THE UNIVERSITY OF ST. ANDREWS.

To the Editors of THE LANCET.

SIRS,—My attention has been drawn to a paragraph in THE LANCET of Dec. 17th, 1904, p. 1763. The last Scottish Universities Commission, which finished its sittings in 1897, abolished the old power of granting ten M.D. degrees a year to practitioners of 15 years' standing and 40 years of age which the University of St. Andrews previously enjoyed.

I am, Sirs, yours faithfully,
E. WAYMOUTH REID,
Dean of the Faculty of Medicine, University of St. Andrews.

University College, Dundee, Jan. 11th, 1905.

THE ROYAL ORTHOPÆDIC HOSPITAL.

To the Editors of THE LANCET.

SIRS,—My attention having been drawn to the fact that the name of the hospital has been omitted this year from the Medical Directory, notwithstanding the fact that I made the annual return to the publishers, I shall be glad if you will kindly find space for this letter in the next issue of your journal in order that your readers may not form any wrong impression from this omission.

The hospital, having disposed of its site in Oxford-street and Hanover-square and the amalgamation with the National Orthopædic Hospital of Great Portland-street having, through the initiative of King Edward's Hospital Fund for London, been decided upon, is occupying temporary premises at 55, Bolsover-street, W., in proximity to the National Orthopædic Hospital, where its work is being carried on as usual.

Last year there were 3732 attendances of out-patients; and, by arrangements with the National Orthopædic Hospital, 133 in-patients were admitted and treated by the medical staff of this hospital. This arrangement will continue in force until such time as the amalgamation can be brought about and the rebuilding of the premises for the combined hospitals commenced.—I am, Sirs, yours faithfully,

Jan. 18th, 1905. TATE S. MANSFORD, Secretary.

THE BENEFITS OF LARGE ENEMATA.

To the Editors of THE LANCET.

SIRS,—The recent pronouncement of an eminent surgeon with regard to the treatment of obstinate constipation by ablation of the large intestine induces me to send you this record of my own personal experience, thinking it may be of value to some of your readers. I am now in my seventy-seventh year. In my early career when a medical student I contracted a very severe attack of dysentery at the time when cholera was very prevalent in London; and some years after on coming to London when greatly exhausted with work I was similarly seized and lost consciousness. The dysentery was most acute and I have a very vivid remembrance of the treatment, prescribed by the late Sir William Gull—viz., large doses of ipecacuanha, which certainly relieved the agony, but nauseated me to such an extent that my remembrance shudders at it still. More than 15 years ago I began to notice that the evacuations were getting smaller and smaller and that the difficulty in gaining effectual relief was becoming serious. I had a long and trying experience with aperients, small doses of castor oil, sulphur, hyoscyamus or belladonna, with soap or colocynth, and aperient waters, but these at first all seemed to do well enough but they became fitful in their time of operation, and being engaged in a large practice this was exceedingly inconvenient and at last became an intolerable nuisance. Moreover, it became quite clear that the contraction of what I presumed to be cicatricial in respect of the history was getting tighter and this led me to consider whether dilatation from below might not prove a very simple and easy means of ridding myself of these daily discomforts. This was the commencement of my use of enemata. I began with a pint of warm water the last thing at night, now more than 15 years ago. Before long I found that this was insufficient and I increased it to one and a half pints and then to two pints, and for some years lately some 56 to 60 ounces. I can always insure a good and complete relief of the bowels and generally I go to sleep about eleven o'clock and sleep till six. I manage to place myself in the posture as though I were lying down, so as to prevent the undue sagging of the intestine from the pressure of so large a quantity of fluid. After I began to use the large injections I gradually noticed that I was enabled to part with larger motions and now one of somewhat larger size proves to me that the calibre of the intestine in the part affected still keeps a grip upon the moving mass. I have not been able to see in my own case the injury thought to result from large enemata. I think there are many advantages. The emptying of the bowel of flatus, of feculent matter, not always perhaps in cases of this nature of the most salubrious type, brings with it refreshing and abundant sleep, removes headaches, and leaves the mind and body clear for the work and thought of another day. I have so greatly benefited by this method myself that I consider my lengthened experience of its value may be worthy the consideration of any who are contemplating the removal of their large intestine.

I am, Sirs, yours faithfully,
X

Jan. 17th, 1905.

THE CAUSATION OF SEX.

To the Editors of THE LANCET.

SIRS,—The letter of "Medicus" in THE LANCET of Jan. 7th, p. 58, is not a solitary observation and his results are confirmed by other if less exact trials of the same general nature. There is little doubt that his observations are perfectly accurate so far as they go, but it is perhaps worth while to observe that there are two large factors which he does not mention though he has probably not overlooked them. He has been needlessly tender with the theory of the "predetermined" ovum.

Of these, the first is the relative age of the parents. It is a point of very considerable importance that the mother whose reproductive powers are senescent is extremely prone to produce male offspring only. This observation seems to be true not only of mammalia generally but also of aves; moreover, it is frequently seen to be true of homo and is a factor quite disassociated from any paternal factors. As a sort of corollary to this factor is the much less marked tendency of the immature sire to beget female issue. This tendency is less marked relatively but it is intrinsically evident enough and more

frequent than the male tendency of the senescent mother though weaker in action.

The second great factor is the at present inexplicable tendency of certain female strains to produce female issue only. This factor is the strongest of all applying to homo, so far as long research will justify the statement. These observations, based on a combination of genealogical and medical studies, can easily be tested by anyone caring to work at the subject and one of the first points to attract the student's attention will be the frequency with which estates coming by the lass go by the same way, often for several successive generations, apparently until an exceptionally virile sire intervenes.

I am, Sirs, yours faithfully,

Jan. 12th, 1905. MEDICUS ALTER.

TAXATION OF HOSPITALS IN RESPECT OF MALE SERVANTS.

To the Editors of THE LANCET.

SIRS,—On behalf of the managing committee of a provincial hospital, I would beg you to find room in THE LANCET for the insertion of the following which bears upon a subject of great interest to all hospitals. During the month of December an Inland Revenue Form, No. 132, "Declaration for Local Taxation (estab., &c.) Licences," was forwarded to me to be filled up for the year 1904, the suggestion made by the local revenue officer being that one or more of the men engaged in the necessary service of this institution come within the "definitions" for *male servants* given on the said form. The contention of my committee is that all the men engaged here are employed on duties connected with the work and daily routine of the hospital and of the patients therein and not in any exclusive capacity, and, acting under my committee's instructions, I have made a return to that effect. We should be glad to hear through your valuable columns whether similar claim is made in the case of other hospitals either in London or in the provinces, and, if so, what is the nature of the return made from those institutions.—I am, Sirs, yours faithfully,

Jan. 10th, 1905. A HOSPITAL SECRETARY.

THE ASYLUM MEDICAL SERVICE.

To the Editors of THE LANCET.

SIRS,—I am glad to see by the letter of "M.B." in your issue of Dec. 31st, 1904, p. 1888, that at least one assistant medical officer has the courage to protest against the treatment which is meted out to his colleagues in the asylum service. The present unsatisfactory state of affairs has gone on quite long enough and in the interest not only of the medical staff but also of the patients committed to their charge a change is desirable, even essential. As long as the medical staffs of asylums are content to exist under their present conditions it is useless to insinuate that the fault lies at the door of those in authority, be they Commissioners in Lunacy, visiting committees, or even medical superintendents. The fault and the remedy lie in their own hand. But how few will ever take the trouble to place their views on paper. There are three distinct classes of assistant medical officers in asylums: (1) those who on entering it intend to remain in the service, devoting their lives to the study and treatment of mental diseases and thus in time becoming specialists; (2) those who, newly qualified, seek an asylum appointment in order that they may read for some further examination, on the passing of which they have set their ambition; or (3), those who unable to afford to enter general practice immediately they become qualified take an asylum post with the intention of waiting for a suitable opening in some district which may be known to them. When the opportunity presents itself they leave and are succeeded by colleagues with possibly similar views. To such as these an asylum appointment is but a means to an end. The end having been attained they depart and as a rule trouble no more about lunacy or asylums unless they be called on to certify a patient in the course of their general practice.

In the case of an assistant medical officer who enters the asylum service with the intention of remaining permanently in it the case is very different. He starts full of enthusiasm and hope with an initial salary of anything from £120 to £150 per annum with the usual allowances. Three or four years pass by and he finds himself with some knowledge of mental diseases in addition to the general knowledge of his profession with which he started, but it suddenly occurs to him that notwithstanding his increased experience in a special science he is still drawing the same salary as when he entered the asylum service fresh from the hospital. His colleagues who are senior to him have little, if any, prospect of promotion in the future. True, they have had more years of service and consequent experience, but their salaries are very little in excess of what was considered sufficient remuneration for him when he entered the service without any special knowledge of lunacy. Then come weary years of waiting, hoping that one of his seniors may be promoted to one of the few vacant medical superintendencies which may chance to occur at rare intervals, and in most cases with resulting disappointment. His senior colleague, should he be unsuccessful in obtaining the post of medical superintendent in some other asylum, is in, if possible, a more hopeless plight. He has given the best years of his life to the study of mental diseases. What is his reward? A salary of perhaps £250 or £300 per annum and should he be over 40 years of age the probability that he may expect no further promotion or increase of salary. Moreover, there is a rule that no assistant medical officer can be married. (I believe there are one or two cases in which the senior assistant medical officer can do so if he likes.)

To the junior members of the staff this is not such a hardship as to their seniors. The pay and accommodation of a junior assistant medical officer put matrimony out of the question but when a senior comes to the age of, say, 40 years he may have some desire to have a home of his own after living for years in two rooms. With all respect for the authorities who govern asylums I would ask, What has a man done who has given the best years of his life to their service that he should be debarred from entering the matrimonial state should he so desire? As far as I can ascertain there is no other branch of the public service in which such a restriction is imposed on the permanent medical staff. It may be argued by those who favour the present system of enforced celibacy in the case of asylum assistant medical officers that a similar rule is in force in the hospitals and Poor-law infirmaries. To them I would point out that in neither case do the medical officers accept their appointments as a permanency. They, as a rule, leave after longer or shorter periods and enter general practice or one of the services, the experience which they gained during their term of office being of immense value to them in their future careers. With the asylum medical officer the case is absolutely different. After some years, as "M.B." correctly states, spent in the treatment of mental diseases a man has become a specialist and is thus more or less unfitted for general practice. The special experience he has gained in the asylum is of comparatively little use to him outside the walls, his duty for years having been more to treat mental diseases than physical ailments. Therefore there is no analogy between the cases.

With regard to the striking differences between the salaries paid to medical superintendents as compared with those of senior assistants I do not for a moment suggest that the medical superintendent, who is according to the Lunacy Act the chief responsible official of an asylum, is paid too much, but I maintain that there is far too great a drop from the medical superintendent with, say, from £800 to £1000 per annum and certain allowances to that of his deputy who, it must be remembered, in the absence of the chief has to take the full responsibility at one-third, or even in a few cases less than, the chief draws. This increase of responsibility, if prolonged owing to the illness of the medical superintendent or other cause, is not always recognised by the committee, or if it is a small honorarium is doled out to the senior assistant medical officer who has discharged the duties of medical superintendent in addition to his own routine work. It must be obvious that in these days of huge asylums the duties and responsibilities which were formerly personally discharged by the medical superintendent have now to be deputed to the assistant medical officers.

The Commissioners in Lunacy in their last report strongly condemned the erection of these huge places, but despite this, committees ignore the recommendations of a body whom the public look upon as experts in such matters and still continue to erect enormous costly "houses for the detention of the insane"—one really cannot call them hospitals for the treatment of mental diseases.

The question of leave is also the source of much complaint

in asylums. The medical superintendent gets one month or in some cases six weeks annually, the assistant medical officers 28 days or perhaps in a few cases 31 days. Occasional leave is grudgingly accorded and then only one night can be spent outside the asylum gates unless a special appeal is made to the chairman of the committee who, unless there is some special reason given for wanting leave other than annual, may refuse it. Anyone with common sense must appreciate the fact that constant association with the insane is not conducive to exhilaration. Therefore a change of short duration at fairly frequent intervals, exclusive of annual leave, becomes not only desirable but even necessary to those who have charge of them. If the best men are to be attracted to the study of lunacy, which is becoming daily a more and more alarming factor in our social system, it behoves the authorities to amend the conditions of service of the assistant medical officers who have served them so long uncomplainingly. By this means alone can good men be induced to enter the asylum service as a permanency. Under the present system the junior post in asylums is usually sought after as a temporary abiding place where examinations may be read for or as a pleasant resting place until some better or more congenial employment turns up.

I am, Sirs, yours faithfully,

Jan. 13th, 1905. A. M. O.

L'INSTITUT DE VACCINE ANIMALE, PARIS.

(FROM A SPECIAL CORRESPONDENT.)

MOST of the vaccine used in France in general, and in Paris in particular, comes from the Institut de Vaccine Animale at No. 8, Rue Baller, Paris, a private foundation dating back to 1864 and due to M. Chambon whom I found still hale and hearty on the occasion of my visit. M. Chambon has been succeeded in the directorate by Dr. Saint-Yves Ménard, veterinary surgeon, physician, and professor of hygiene at the Central School of Arts and Crafts, who himself most kindly showed me his establishment.

Perhaps the most striking feature of this institution is that it provides for direct vaccination from the calf in Paris in all cases without exception. However carefully done, the processes for preservation and dispensing of a vaccine lead most certainly to its deterioration in strength, whereas the success of the immediate inoculation has been most constant and satisfactory. Vaccination in France may fortunately be said to know no enemies—a fact which is attributed by some to the non-existence in France of the elderly spinster, thanks to the male population being little depleted by the claims of empire; thanks also, perhaps, to the ranks of the potentially political spinsters being considerably thinned by sisterhoods. The people, therefore, are easily persuaded to be vaccinated and vaccination is brought freely down to their very doors by vigorous and enlightened municipalities such as that of the city of Paris. In every one of the 20 boroughs (*arrondissements*), usually in the charity offices (*bureaux de bienfaisance*) at the town halls, and in every one of the chief hospitals free vaccination directly from the calf is performed once a week on one particular day and at one particular time of day, and at the Academy of Medicine it is performed three times a week, the complete list being printed in convenient form on quarto paper and widely advertised. Every night the unvaccinated in the shelters are vaccinated. If anywhere a case of small-pox breaks out the fact is telephoned to the Vaccine Institute, an official is sent on a bicycle to impress on all neighbours the need of vaccination and to post notices,[1] and a public vaccination is held on the spot, often in the street, the next morning. For the purpose of vaccination the calf with its fourth, fifth, or sixth day pustules is sent down in one of the eight cars specially constructed something like hunt carts for the purpose, in charge of a driver accompanied by a medical officer. Under proper precautions most channels of contamination are thus removed and the figure for successful results of this direct calf vaccination is officially given as 100 per cent. Exact returns for the lymph distributed in tubes are unobtainable. The vaccinations performed by the institute for the ten years 1890–99 are as follows:—

—	Vaccinations.	Revaccinations.
1890	35,406	56,734
1891	37,309	85,055
1892	36,098	58,803
1893	40,813	187,206
1894	38,140	207,034
1895	36,023	120,006
1896	36,827	98,261
1897	38,696	102,931
1898	39,012	104,712
1899	36,996	105,546
Totals	375,370	1,125,288

These figures are made up as follows:—

—	Vaccinations.	Revaccinations.
Hospitals	116,963	411,384
Boroughs	212,481	47,553
Houses infected by small-pox	5,394	89,594
Public schools	1,628	455,611
Various	39,014	121,246
Totals	375,370	1,125,288
Grand total	1,500,658	

This for a population of 2,500,000 gives an average of 6 per cent. vaccinations or revaccinations per annum.

This service involves the employment of four medical men besides the director, the skilled staff being completed by nine assistants and an accountant. The eight cars imply a further equipment of horses, drivers, and stable-hands, but they save the processes of preparation, storage, and distribution of the lymph thus used. The Vaccine Institute accordingly contains not only a waiting room, a couple of vaccination rooms, a laboratory for the preparation and storage of vaccine, and offices for packing and clerical work, but also stabling for 20 calves and eight driving horses, coach-house, and a room for inoculating the calves. As this is all confined in a small area it speaks well for the cleanliness of the arrangements that there is no suspicion of a stable smell about the house. One enters first by the hall into the waiting room, the walls of which are a museum of Jenner lore. There is a French portrait in oils of Jenner, recently acquired by Dr. Ménard, and dated the thirteenth year of the republic (1802), holding in his hand a treatise, "Sur la Vaccine." But Jenner never was in France. There is an autograph letter from Jenner to his son Robert dated London, Nov. 2nd, 1814, when he was tediously awaiting by Royal command the arrival of the Emperor of Russia and entertaining parties of from 12 to 15 at breakfast. There is a steel engraving of a French portrait of the English physician Wilmotte who personally brought the first vaccine to France. There are numerous portraits and caricatures in honour or in detraction of the pioneers. Passing through this room the visitor enters the vaccination rooms, carefully built and simply fitted up with due regard to the needs of asepsis, mercurial and boric lotions being also provided, and outside is a clean tiled recess in which the vaccine is taken from the calf at the moment of operation. After being once used no pustule is employed again.

Next one comes to the stable for 10 calves, which is warmed by hot-water pipes and well ventilated, the most

[1] The following is a translation of the notice:—CITY OF PARIS.—The inhabitants of No. ....., ... Street, and of neighbouring houses are informed that the municipal service of vaccination and revaccination by calf vaccine will be at their service in this house on ..... They are invited, in their own interests and that of their families in order to avoid the spread of small-pox, to obey the directions of the medical men who will perform these operations. Those who are unable to be present are informed by the following table of the places, days, and hours of free vaccination. Small-pox is an eminently contagious disease. Vaccination and revaccination "are the only means of preventing and curtailing the epidemics of small-pox."—(Opinion of the Council for Health and Sanitation of the County of the Seine.) Beneath this is posted the weekly time-table of free vaccinations.)

comfortable and the cleanest stable and the cleanest calves that I have ever seen. The latter are all of the same breed, Limousins of a light bay colour, aged between five and eight months, and weaned some time previously, so that they live well on hay, bran, and oats without being subject to diarrhœa. They are hired for the purpose at 40 francs apiece and are brought straight from the country farms to the farm belonging to the institute outside the city, whence after from three to ten days' observation they are transferred directly to the Rue Ballet. Here they are well washed every morning and the whole of the belly and both flanks are well shaved before inoculation, presenting a clean surface of white skin. After being thoroughly cleansed this surface is inoculated along vertical incisions an inch long and two inches apart in rows not immediately one above the other, and after four or five days—a day longer than in a sucking-calf—the pustules are ready to provide vaccine for from five to 20 persons each. Sixth-day pustules are chiefly used for the preparation of vaccine pulp. From 350 to 450 calves are used in a year. After use they are handed over to the butcher for slaughter.

After many experiments it has been found that vaccination of the calf with glycerinated vaccine pulp of two months' standing gives the purest eruptions, and this is now always used, the vaccine being tested by 48 hours' culture on sloped gelatine. The pulp consists of the whole tissue of a pustule transferred directly, under proper precautions after washing with boric lotion, into glycerine in a nickel bowl. It is then triturated and mixed with more glycerine, up to an equal part, in a special Latapie machine, simple and easily sterilised, which has displaced the Dresden Chalyban's machine in use in most vaccine institutions. It is then transferred into a sterilised glass flask fitted up like the common wash-bottle of a chemical laboratory. A clip on the distal end gives control of the outlet; a valvular ball of thin rubber, like that used for administering chloroform in operations about the mouth, by occasional inflations by hand keeps up the pressure inside the bottle, and a slender nozzle fits into the tubes to be filled. The tubes in common use are of two sizes respectively for four and for 20 vaccinations and are therefore more easily managed than the tubes for single operations. They are sterilised at 200° C. in a Wiessnagg gas-heated stove. When filled the ends are sealed in a blow-pipe, worked by air pressure from a tall, slender water cylinder in the corner of the little laboratory. The tubes are thrust into cotton-wool in small metal cases like the case of a clinical thermometer, and this fits tightly into a cylindrically tunnelled plain piece of wood which is labeled and goes by post for five centimes.

Vaccination is compulsory for all patients in all hospitals except under exemption by medical orders; it is also compulsory for all those in the municipal shelters who are not provided with a vaccination certificate. And now, by Article 6 of the new Public Health Law,[2] dated Feb. 15th, 1902, as the readers of THE LANCET are aware,[3] vaccination is made compulsory during the first, the eleventh, and the twenty-first years of life, all children in the schools and recruits under the conscription law being revaccinated. Schoolmasters furnish lists of children requiring revaccination. The operation, if unsuccessful, is repeated always three times. The twenty-second instead of the twenty-first year should have been prescribed as recruits do not join the army till the end of their twenty-first year and until this mistake is rectified there will be some difficulties. The method by which the new law is to be enforced is laid down in a presidential decree of July 27th, 1903, and detailed in a ministerial circular to the prefects. The authority is the prefect of each department, the autocratic representative of our county council, acting under the advice of a general council and of a departmental council of health. The prefect nominates and controls the medical men, the midwives, and the remaining *personnel* of the service. The general council advises upon the creation of special vaccination areas, upon the time-table, and upon the remuneration of vaccinators, which averages at present about half a franc for each operation. But the Academy of Medicine and the national advisory committee of public health actually determine the general duties of vaccinators and advise the Minister of the Interior as to the control of establishments for the preparation of vaccine. Various measures are prescribed for securing the satisfactory operation of the law and it will be interesting and instructive to us in England to watch its results now that it has for the first time come into force with the new year.

Result of vaccinations.—The report of the director as to the efficiency of his work is as follows: "In our calf-to-arm vaccinations complete success is the rule. With vaccine preserved in tubes the proportion of successes is always about 100 per cent., except for an occasional accident. Our vaccine institute is a private establishment charged with the public services of the city of Paris and county of the Seine (for hospitals and charity offices). As to the number of tubes distributed by other vaccine establishments I have no information."

[2] See "La Santé Publique" (Législation Sanitaire de France), par Henri Monod. Paris: Libraire Hachette et Cie. 1904. 20 francs. See also THE LANCET, Feb. 6th, 1904, p. 194, "Triple Vaccination in France."

[3] THE LANCET, Jan. 16th (p. 194) and Feb. 6th (p. 398), 1904.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Bombay Exhibition (Health Section).

THE large exhibition now being held in Bombay possesses an important health section at which demonstrations on the manufacture of the plague prophylactic form a leading feature, but in addition demonstrations are given on the method of extraction of snake venom, on the defects in water fittings and on the prevention of waste of water, and on the bacteriological treatment of sewage. The novelty connected with the plague prophylactic is in the bottling; otherwise it is manufactured in the old way. The flask of "vaccine" ready for bottling is fitted with an apparatus, previously sterilised, which draws off a portion into a glass bulb. An indiarubber stop seals the exit from the atmosphere. The new form of phial is made to terminate in a fine point which is sealed after the phial has been sterilised and exhausted of air. The point of the phial is thrust through the indiarubber seal into the bulb of "vaccine" fluid and the point is broken off by impinging against a small steel bar. The "vaccine" rushes into the phial which when filled is withdrawn and at once sealed. Successive phials are filled until the flask is emptied. By this process the prophylactic does not come in contact with the air. The phials are kept for ten days and a percentage of them is tested before being issued. A sample of each phial is kept, numbered, and recorded. This is accomplished by utilising the long points of the phials which containing the prophylactic are cut off and a small proportion of the fluid is thus retained from each phial. Another interesting exhibit consists in models of some of the worst chawls of Bombay and in contrast some of the new buildings erected by the Improvement Trust. Nothing could better illustrate the amazing development which is going on in Bombay. The municipality has organised large models in bas-relief of the Tausa waterworks of the island of Bombay, models of the system of house connexions, of the water filters, and of a new detritus trap. These exhibits will possess a very high educational value. The health section of this enterprising exhibition is a great success.

Further Rise in the Plague Mortality.

The plague returns for the week ending Dec. 17th show that throughout India there were 18,284 deaths. This is a rise of 855 over the previous seven days.

The New Director-General.

Much surprise is felt at the announcement that the post of Director-General now held by Sir Benjamin Franklin, I.M.S., will fall to Colonel Gerald Bomford, I.M.S., who has many seniors and has only recently left his post of principal of the Calcutta Medical College. It is the opinion, however, of many that he possesses great administrative capacity.

Lathyrism.

The report of the inquiry into the occurrence of lathyrism has been recently published and shows that the common belief which connects the prevalence of lathyrism with the long-continued and excessive use of the vetch known as Kesari dal is correct. It was found that the paralysed persons had eaten lathyrus in large quantities and for a long time and that no one was paralysed who had not

eaten it. Many who found paralysis coming on gave up this vetch as food and recovered.

Further Scientific Investigation into the Etiology of Plague.

On his arrival at Bombay Lord Curzon announced that he had been in communication with the heads of the Royal Society and with the authorities of the Lister Institute on the subject of further scientific investigation into the etiology of plague. The Punjab Government has made official proposals to the Government of India and the Government of India has forwarded a dispatch to the Secretary of State. At the same time the corporation of Bombay had arrived independently at the same conclusion—viz., that further inquiry was urgently needed. The concurrence of authoritative opinion arrived at without consultation shows how widely the opinion is held that more should be done to discover means for combating this increasing scourge. We may therefore expect to hear shortly of the definite appointment of a further plague commission. It is to be hoped that all the members will be scientific investigators and that no civilians will be nominated. There are no questions of administration or of policy requiring their presence and the inquiry needed is a purely scientific one.

Dec. 31st, 1904.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Floodgate-street Area.

THE Floodgate-street area was again the subject of public comment at the annual meeting of the Birmingham magistrates. Alderman Cook, the chairman of the health committee, drew the attention of the magistrates to the report of the medical officer of health on the area, in which he attributes the high mortality to excessive drinking; he moved that all magistrates be supplied with a copy and said that the very least they could do was to give it a full and serious consideration. This was seconded and Mr. A. M. Chance, the chairman of the licensing committee, in supporting it, took the opportunity of stating how important and able a report he deemed it. An influential meeting of the citizens' committee, which was largely instrumental last year in directing attention to the subject, has also met to consider what steps should be taken in view of the Brewster sessions to be held next month. The meeting passed no resolution, deciding to await indications of the policy likely to be adopted by the magistrates. The laying on of a supply of water to each house in the courts of this same area was considered at the last meeting of the Birmingham water committee. A subcommitttee which had been appointed to consider a communication from the health committee on this question reported that the use of standpipes for courts led to a great waste of water owing to the users allowing the taps to run more or less continuously and that now that the Welsh water-supply was available there was no reason—so far as they were concerned—why a supply should not be laid on to each house. The report was adopted as the answer to the health committee.

Drunkenness during the Past Year.

At the annual meeting of the magistrates Mr. Chance, the chairman of the licensing committee, referred to a report received from the chief constable relating to the number of persons convicted for drunkenness during the years 1902, 1903, and 1904. In 1902 the number was 2576, in 1903 3064, and in 1904 3478. Commenting upon these statistics Mr. Chance thought their unfavourable nature was attributable to the Act of 1902 and to its more stringent enforcement by the police. The statistics, in his opinion, showed that, much as they all desired a reduction in the number of licences, it was not the only factor to be considered. He did not believe that drunkenness was on the increase in Birmingham. A communication from the Home Department about the disregard shown for the regulations concerning the black list drew forth the opinion that the list had proved an utter failure, that persons who had been placed upon it were brought up almost daily. The Brentry Homes for Inebriates was the subject of a special report to the magistrates by Mr. J. C. Lord. He expressed himself as satisfied with the sanitation and administration of the homes and with the health and behaviour of the inmates. He regretted that of the 15 beds allotted to Birmingham only eight were at present filled by local cases; the more so because he was of opinion that more good would accrue from the sending of suitable cases to a reformatory than by sending them to prison. He would like to see those starting on a career of drunkenness sent there and wished to impress upon the younger members of the bench the importance of looking carefully into all cases with a view to this course of action.

The Birmingham Water.

The medical officer of health submitted to the water committee at its last meeting the results of analyses of samples of the Birmingham water. A sample taken at Frankley before filtration on Dec. 15th was found to possess a marked purity and to show less colour than the previous ten samples. The persistent brown colour heretofore has occasioned a certain amount of anxiety among the more nervous of the community.

Handsworth and Medical Relief.

At a meeting of the West Bromwich board of guardians it was decided to divide the Handsworth parish into two districts for medical relief purposes—viz., No. 1 district to consist of Sandwell, Soho, and Murdock wards; and No. 2 district of Birchfield and Heathfield wards and the parish of Perry Bar. The reason for the division is the enormous growth of the district during late years. In consequence of the division two medical officers will be appointed at salaries of £70 each per annum instead of one, as at present, at a salary of £110.

Health of the City.

The health returns show that for the week ending Dec. 31st, 1904, the death-rate was 25·3; for the week ending Jan. 7th the death-rate was 21. The zymotic death-rate for the former week was 1·9, as against 0·7 for the first week of this year. The reduction in the zymotic death-rate was due particularly to the decrease in deaths from diarrhœa and pulmonary tuberculosis. At the end of last week there were 193 patients in the scarlet fever hospital, as compared with 211 at the close of the previous week, and the typhoid fever wards contained 19 patients as against 26.

Health of West Bromwich.

The medical officer of health of West Bromwich has just issued his sanitary summary for the year 1904. This shows a birth-rate of 33·6 and a death-rate of 15·9, the decennial averages being 35·2 and 18·6 respectively.

Bequests to Local Charities.

By the will of the late Mr. William Ansell of Sutton Coldfield the local charities have benefited to the extent of £5000.

Jan. 16th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Infantile Death-rate at Dukinfield.

AT Dukinfield 1 in every 3 children born dies in infancy. It seems as if all efforts to reduce this mortality were fruitless. It is said that the county authorities and Mr. F. Vacher, the medical officer of health, "have repeatedly roused the ire of the town council by their scathing comments" on the town's record of mortality. The suggestions of the county council health committee have been put in operation without reducing the death-rate. The sanitation, under the care and guidance of Mr. Bancroft, the chairman of the sanitary committee, has been greatly improved. "A health-giving breeze sweeps through the town from the adjacent moors and the water-supply is second to none in its purity." Four or five years ago it was thought that the milk-supply might be faulty and at the wish of the county council a sterilised milk depôt was opened. This new venture tickled the sense of humour of the people who, though living in Cheshire, closely resemble their near neighbours of Lancashire in this peculiar quality, which is quaint and racy if not grounded on knowledge; and this venture of sterilised milk was killed by ridicule in about two years. It is said, indeed, that the infantile death-rate was not lower but higher during the use of sterilised milk, though there was probably no connexion between them. Last month the deaths were equal to 325 per 1000, the highest in Cheshire. When all

general influences noxious to health have been so far as possible removed without apparent result the inquiry should go nearer home. The population is a manufacturing one, the mothers work in the mills, and the infants are of necessity left to the care of others. Mothers and caretakers are, with occasional exceptions, steeped in the grossest ignorance. The natural food of the child is not forthcoming, for the mother in most cases is a poor creature, unable to furnish it, and the child receives all kinds of substitutes, most of them hurtful. It is difficult to root out the ignorance and prejudice of many generations, more especially in a people who are strongly inclined to what is called "independence" and somewhat sensitive as to being "meddled with," but perhaps more may be hoped for in the next generation, if, as is foretold, the education given in the elementary schools is to be so changed as to be really useful to the children in their after life. Some instruction in the simple laws of health and in the care and feeding of young children may surely be given. In the meantime a society like that of the Manchester Ladies' Health Society may by its tactful and sympathetic ministrations do something to lessen the ignorance, and in some cases the apathy, underlying the waste of life that has become so common as to be almost disregarded.

Wanted to Sit on the "Live" Rail.

The dangers surrounding the path through life seem to increase with every application of science and the electric or electrified railway may be taken as an illustration. About a week or ten days ago two drunken fellows were found trespassing about midnight on the Lancashire and Yorkshire line near Southport. This portion of the line is "electrified." One of the men challenged the other to sit on the "live" rail. Fortunately the man challenged was not too drunk to decline and the other said that he would put his foot on it, adding that he was prepared to meet his Maker. A pointsman telephoned for help and with the aid of three porters the men were got off the line safely, though they several times lurched in dangerous proximity to the "live" rail. Each man was fined 20*s.* and costs, which may help to remind them of the dangers of the "live" rail and of being drunk when near it. But apart from any question of drunkenness, there is no doubt that with the increasing use of electrical appliances dangers are multiplied and it is greatly to be desired that more care should be taken to diminish these dangers as much as possible.

Jan. 17th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Annual Report of the Medical Officer of Health.

AT the first meeting of the sanitary committee of the Leeds city council Dr. J. Spottiswoode Cameron presented his annual report for 1904, from which it appears that the birth-rate was 28 and the gross death-rate was 18, the average birth- and death-rates for the last ten years standing at 31 and 19 respectively. The ratio of deaths under one year to 1000 births is 176, as against an average of 171 for the previous four years. There had been 64 cases of small-pox with two deaths.

Leeds Crematorium.

Messrs. Toisoul, Fradet, and Co. of Paris have supplied the crematorium which has just been erected at Lawnswood Cemetery with one of their lighting gas furnaces and the experimental trials, as well as the first actual cremation, which took place recently, have been eminently successful. This is the first furnace of its kind erected in this country and it is claimed that the temperature can be regulated to a nicety and the amount of hot air admitted also, so that at first rapid desiccation of the body takes place and then complete combustion occurs on a lowering of the temperature with the admission of an extra amount of hot air. A crematorium on similar lines is shortly to be erected at Bradford.

Small-pox.

Small-pox has been prevalent in some of the districts around Leeds, notably in Dewsbury and the neighbourhood. Last week there were 21 cases notified in Leeds and removed to the hospital. These were mostly due to an outbreak at a common lodging-house and at houses in the insanitary area. At the end of the week there were 28 patients under treatment in the hospital as against ten at the end of the preceding week. For some time the resident staffs of the infirmary and dispensary have been especially on the alert for the possibility of cases turning up in the out-patient rooms and several cases have in this way been detected and dealt with. The infirmary has refused admission except in cases of emergency to patients coming from townships known to be infected and the attendance of patients from infected areas at the x ray and the Finsen light departments has been suspended. On investigation it was ascertained that between 90 and 100 of those resident in the infirmary—namely, medical officers, nurses, porters, wardmaids, and servants—had not been revaccinated for three years, which had been selected as a working time limit of safety, and these were all revaccinated except three, of whom two were leaving the service of the infirmary and had been vaccinated five years ago.

The Sale of Poisons.

The Bradford stipendary has delivered his judgment in a case tried before him on Jan. 4th. Six local registered druggists were summoned for an alleged infringement of Subsection A of the 17th Section of the Pharmacy Act of 1868, which makes it unlawful to sell any poison to any person unknown to the seller, unless introduced by some person known to him. The summonses were taken out by the secretary of the Patent Medicine Vendors' and Drug Stores' Association. The general issue was dealt with on one summons and it appears that a box of Rankin's ointment, which contains veratrine, was supplied to a woman without any questions being asked. It was advanced for the defence that the ointment was a poisonous compound prepared for the destruction of vermin and that such a preparation, though containing a scheduled poison, was exempt from the section of the Act under which the summons had been taken out. The stipendiary convicted and imposed a fine of £2, with £1 14*s.* 6*d.* costs, and intimated that he would consider the question for the statement of a case if application were made to him within seven days.

Grants to University Colleges.

A memorandum from the Treasury dealing with the subject of increased grants to university colleges states that the amount voted for 1903–04 was £27,000 and that the amount voted for 1904–05 is £54,000. The original grant of £27,000 is distributed among the various colleges as before. Of the additional £27,000 a sum of £9000 is to be distributed substantially on the old basis; a further sum of £9000 is to be similarly allotted for the year 1904–05 only, as the present year is of a transitional character and the changes which the committee will recommend in the method of distribution cannot be immediately brought into full effect. The committee reserves its proposals as regards the remaining £9000. The effect of this, so far as the University of Leeds is concerned, is that the grant now stands at £4000, as against £2300 for last year.

University of Leeds.

Professor R. H. Hartley having resigned the professorship of public health the council of the University has offered the chair to the medical officer of health of the city, Dr. Spottiswoode Cameron. A demonstrator in the subject is also to be appointed.

Scholarships for Medical Students.

The following rules embody some changes in the regulations: 1. The medical scholarship of 64 guineas, which covers the complete course of lectures at the medical school, is now to be awarded on the result of the joint matriculation examination under certain conditions. 2. The infirmary scholarship of the value of 40 guineas, given by the faculty of the infirmary and covering the course of clinical instruction, is to be awarded under certain conditions on the result of the first M.B. examination held in June of each year. 3. As heretofore, medical students who are studying also for the B.Sc. may hold the Akroyd and Brown scholarships, the Leeds City Council scholarships, and certain free studentships under the grant of the city council.

Jan. 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Royal Infirmary: Annual Report.

THE annual report of the Edinburgh Royal Infirmary reminds the public that the present buildings have been in occupation for 25 years. The growth of the institution is abundantly illustrated by the figures given in the report. In 1880 the number of indoor patients treated was 5315; in 1904 they had reached a figure almost double that—namely, 11,125. The number of outdoor patients treated had more than doubled, having risen from 15,000 to 33,412. The ordinary income had risen from £21,541 to £33,814 and the ordinary expenditure from £27,818 to £49,808. The number of patients treated in the infirmary during the year with which the present report deals was 11,125; of these 858 died. There was an increase of 671 over the preceding year. The average daily number of patients was 310. The ordinary income amounted to £33,814, an increase of £1128 over the previous year. The ordinary expenditure amounted to £49,808, or £2207 above that of the preceding year. Important changes have been decided upon in the surgical out-patient department. There had been a good deal of criticism of this department in the Edinburgh evening papers and the result has been as follows. The department is to be under the continuous supervision of one of the assistant surgeons, these gentlemen taking the work in rotation for four months at a time and during those months they are to be relieved of all other duties in the infirmary. The surgeon on duty is to be assisted by such house surgeons, dressers, and nurses as may be necessary and he is to have two day and two night porters. A house surgeon is to be constantly present in the department both day and night. In addition a small operating theatre is to be added to the department. The report, of which the foregoing gives the most important details, was submitted to a meeting of the court of contributors on Jan. 2nd, the chair being occupied by the Lord Provost. In submitting the report the chairman referred to the decision of the meeting of contributors with reference to the rule of an age limit for the honorary staff. He thought it was understood that the rule was not to be applied to the present professors or to the members of the ordinary staff in the second or third terms of tenure of office and the board was acting on that presumption. The board has thus made a rule applicable to all future appointments and one which will affect the tenure of office of only two or three of the present assistant staff. It would have saved hours of controversy and weeks and months of heart-burning if at the outset it had been intimated that all present holders of office were to be exempt from the new rule; as it is, peace now reigns for the few victims of the new rule appear to be indifferent to its effect. Time alone can show whether the infirmary is wise in making this rule for its physicians.

University of Edinburgh: Annual Report.

The annual report of the University of Edinburgh shows that there were 1480 students of medicine during the year: of these 683 belonged to Scotland, 352 were from England and Wales, 113 from Ireland, 74 from India, 238 from British Colonies, and 20 from foreign countries. The number of women attending extra-academical lectures with a view to graduation in medicine in the University was 116. During the year the degree of M.B., C.M. was conferred on four candidates; that of M.B., Ch.B. on 161 (including 12 women); and the degree of M.D. on 61. With regard to the Carnegie foundation it is stated that students have availed themselves of it to take more classes than they would have otherwise done. A lectureship on the Practical Application of Anæsthetics has been established and also one on Infective Fevers. Dr. T. D. Luke has been appointed to the former, and Dr. J. O. Affleck and Dr. C. B. Ker of the City Hospital to the latter.

Typhus Fever in Aberdeen.

In his monthly report, which was submitted to the public health committee of the town council on Jan. 11th, Professor Matthew Hay, the medical officer of health, stated that on Dec. 20th, 1904, a case of supposed measles in a labourer residing in Shoe-lane was reported as requiring removal to the City Hospital on account of the patient having exhibited symptoms of delirium. At the hospital the man was found to be suffering from typhus fever. No other case of that disease was known to be in the city at the time and, indeed, no cases had been reported since 1899. There had, however, been some weeks previously among the children of the patient what were regarded as cases of measles, but as measles is unusually prevalent at present it could not be definitely assumed that these were cases of typhus fever. In the week following the admission of the patient to the hospital his wife became ill with similar symptoms and she was at once removed to hospital. Two days subsequently a case of supposed typhoid fever was notified from a house in West North-street and the active inquiries which were then made resulted in tracing a total of some 40 cases of illness with 10 deaths, now attributed to typhus fever. The earliest attacks seemed to have occurred in a house in Martin's-lane, where the father of the family had died so far back as Oct. 5th and where there had since been several cases of a similar illness. It is proper to state that owing to the rare occurrence of typhus fever in recent years comparatively few medical men have ever seen cases of it and are therefore less ready in recognising them when they unexpectedly occur, especially as the rash is often ill-defined and is difficult to see in dingy, badly lighted, and in many cases dirty houses, such as those in which the present epidemic had its beginning. The less serious cases in the children were not always seen by a medical man and the more serious cases in grown-up persons had the typical characters of the disease obscured in several cases by inflammation of the lungs, to which the general illness was regarded as being due.

Turner Memorial Hospital, Keith.

The annual meeting of the committee of the Turner Memorial Hospital was held at the hospital on Jan. 9th. The medical officer, in his report for the past year, said that 66 patients had been admitted, of whom 43 had recovered, 11 had improved, five had died, and there were seven in the hospital on Dec. 31st, 1904. Of the 66 admissions, 43 had come from the parish of Keith and seven from the parish of Grange. The treasurer, in his report for the year, stated that a sum of £285 stood to the credit of the capital account. The revenue for the year amounted to £592 and the expenditure to £450. The directors of the hospital afterwards met. It was decided to allow patients from the participating parishes who were suffering from infectious diseases to be admitted to the hospital at the rate of 12*s.* 6*d.* a week.

Jan. 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Action against a Medical Man.

IN the Nisi Prius Court on Jan. 16th, before the Lord Chief Justice and a special jury, the case of Hanrahan *v.* Parry was concluded. The plaintiff, Miss Frances Hanrahan, a barmaid residing in Dublin, sued the defendant, Dr. William Harrop Parry of Llanrwst, Denbighshire, to recover damages to the amount of £1500 for breach of promise of marriage. The Lord Chief Justice commented severely on the conduct of the defendant who proved to have been for years a married man. The jury awarded the plaintiff £300 which the Lord Chief Justice said was a proper verdict.

Erection of a Sanatorium for Consumptives in the County of Cork: Public-spirited Action of Local Authorities.

Some time ago a movement was inaugurated with a view to induce various public boards in Cork city and county to join together for the purpose of erecting and maintaining a sanatorium for consumptives. The local branch of the National Association for the Prevention of Consumption took up the project energetically. It sent deputations to the borough council, the county council, and to all the urban and rural district councils. The members of the deputations emphasised the importance of checking the ravages of consumption. They pointed out the terrible destruction of human life caused by pulmonary tuberculosis and what an advantage it would be to have an institution in which the disease could be arrested in its earlier stages. They referred to the contagiousness of the

malady and expressed a strong opinion that the establishment of a sanatorium would within a short time mean a saving in the rates. The various public boards, 38 in number, took an intelligent view of the situation and agreed to strike a rate of 1*d.* in the £ for the erection and maintenance of a sanatorium. A Bill has been passed through Parliament giving them the requisite powers and a committee of 56 members held their first meeting on Jan. 7th. They appointed Mr. D. D. Donovan, medical officer of health, and Dr. P. J. Cremen to assist them in the selection of a site. It is also proposed to call in an expert to consult with those two gentlemen. Mr. Barter, St. Ann's-hill, Blarney, has very generously promised a contribution of £500 towards the erection and equipment of the sanatorium. An institution of the kind is an absolute necessity, as pulmonary tuberculosis is unduly prevalent in the city and county. The public boards concerned deserve every credit for their benevolent and far-seeing action.

Physical Degeneration and Bad Hygiene.

Under the auspices of the Irish Association for the Prevention of Intemperance Professor G. Sims Woodhead delivered a lecture on Jan. 9th in the theatre of the Royal Dublin Society on the question "How far is Physical Degeneration the Result of Bad Hygiene and Intemperance?" Dr. James Little, who presided, said that nobody could walk through the streets of Dublin without noticing that a degeneration had taken place in the physique of our people. He did not think them worse than the people, say, in Vienna but they appeared to him to be much inferior to the workmen in Berlin and the north of Germany. Professor Woodhead in his lecture dealt chiefly with the conditions on which the nutrition of the body depended such as fresh air, suitable food properly cooked, temperance, &c. As regards the increase of lunacy in Ireland, he said that it did not seem to go on side by side with increase in drinking, as was the case in England and Scotland, where increased consumption of alcohol among certain classes was invariably associated with a corresponding increase in lunacy. Sir Francis Cruise proposed a vote of thanks to the lecturer which was seconded by Sir Lambert Ormsby. Mr. T. W. Russell, M.P., in proposing a vote of thanks to Dr. Little for presiding, said that in dealing with the situation in Dublin they should not forget that the city contained a greater number of the very poor than any other of the same population in the United Kingdom, and when he thought of the awful state of affairs in the tenement houses, how the people lived in single rooms, how they were fed—or rather not fed—he felt inclined to wonder that they were ever sober.

Rainfall in Belfast in 1904.

Meteorologists will be interested in the following particulars as to the rainfall in the Belfast district for the year 1904. The information is based on the returns from Queen's College, Belfast, and from Goschen, Springfield. The latter place is in the neighbourhood of Belfast, about 150 feet above sea-level, as compared with Queen's College, which is 68 feet above sea-level. The total fall for the year 1904 was at Queen's College, Belfast, 31·841 inches and at Springfield it was 36·65 inches. Rain fell at the lower level (Queen's College) on 197 days, while at the higher level it fell on 293 days. The total rainfall in 1904 was below that in 1903, when the figures were 42·339 inches, the highest recorded for over 30 years. During December, 1904, the rainfall was 2·957 inches, the highest previously recorded for December was 8·86 inches in 1876, and the least was 1·81 inches three years later. A rather interesting fact has been made out at Queen's College and that is that the old rain-gauge statistics for the past 40 years may be regarded as absolutely accurate. Last year the College authorities placed in the grounds a new Snowden rain-gauge one foot from the surface. The readings from this were narrowly compared with the old one seven feet from the surface and no difference has been found. The driest month in 1904 was October; rain fell more frequently in April than in any of the other 11 months. August was a wet month and in addition to the gauge registering the greatest rainfall, on 21 days there were downpours. The highest temperature during the year was recorded on July 29th—71·5° F. in the shade—and the lowest—25·3° in the shade—was on March 11th. There were 40 days less rain than in 1903. The greatest rainfall in 24 hours was on Sept. 2nd—0·860 inches—and the average for the past 39 years was 35·512 inches. The greatest velocity of the wind was on Oct. 5th and 6th; there were thunderstorms on four days during the year, that of July 12th taking place between 7 and 8.30 in the evening. The last month of the year was the finest for many years and 1904 the best for 11 years.

Royal Victoria Hospital, Belfast.

The board of management, on the recommendation of the medical staff, at its meeting on Jan. 4th, appointed Dr. T. Houston to act as pathologist for the remainder of the winter session.

The Belfast Cripples' Home.

The bazaar on behalf of the Cripples' Home, which was opened on Dec. 6th, 1904, by Lady Dudley and at which His Excellency the Lord Lieutenant was present, has, after all expenses have been paid, realised a sum of £7300. As showing the interest taken by the poorer classes in the effort upwards of a quarter of a million pennies were received.

Jan. 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Estimation of Carbon Monoxide in the Atmosphere.

AT the meeting of the institute which was held on Jan. 9th M. Armand Gautier read a communication from M. Albert Levy and M. Pécoul concerning an ingenious method for the estimation of carbon-monoxide in the atmosphere. The test will show the presence of carbon-monoxide in the proportion of 1 part in 100,000 parts of air. The method is as follows. The suspected air is passed over per-iodic acid contained in a U tube kept at a temperature of 80° C. The carbon-monoxide if present decomposes the per-iodic acid, setting free iodine. M. Gautier fixes this on copper and estimates the amount by weighing while M. Levy and M. Pécoul pass the air and the iodine through chloroform which takes up the latter. The amount of iodine is estimated by a colorimeter scale and from the amount of iodine the quantity of carbon-monoxide is deduced. The method is absolutely accurate and no other element present in the atmosphere will reduce per-iodic acid. By its aid the atmosphere in the neighbourhood of a suspected stove can easily be examined in plenty of time for the necessary precautions to be taken.

Jan. 17th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Plague at Suez.

SIX cases are now under treatment at the infectious hospital and are recovering; all are bubonic, two femoral, one axillary, two cervical, and one pre-auricular. One pneumonic case was found dead and since then a second patient has been taken ill with pneumonia in the same house. The first case was found on Dec. 10th and since there have been ten others. This is the first time plague has spread in Suez for at least 60 years, though individual cases have often been imported during the last few years. This time it may have arrived with cargo from India, for one dead rat was discovered in a bale of goods, or it may possibly have come with merchandise from Upper Egypt. All the cases so far found have been in the same quarter of the town and there has been a considerable mortality among the rats. The rats are now being poisoned and trapped as far as possible. Dr. J. E. Creswell has injected two bubonic cases with the anti-plague serum furnished by the Pasteur Institute in Paris; in both the fever was lessened and did not again rise and the glands became smaller and less painful though one of them subsequently suppurated. This serum is sent out with instructions in six languages. It is prepared from immunised horses and is recommended both for prevention and for treatment. In the former case ten cubic centimetres are used every ten days, while for treatment from 30 to 50 cubic centimetres are injected under the skin once or two or three times. In bad

cases it is suggested that a double injection of 20 cubic centimetres in a vein and 40 cubic centimetres subcutaneously should be tried. The only other occupants of the infectious huts are two cases of confluent small-pox, from which an Englishman and a Chinaman are convalescing, both having been landed from homeward bound ships. The only other place where plague is present in Egypt is El Toukh in Lower Egypt and there are only about six cases under treatment.

Pilgrims at Suez.

For the last two months pilgrims on their way to Mecca have been assembling at Suez and every week steamers carry them away to Jeddah in batches varying from 300 to 1500. The old khans or caravanserais in the town are full of picturesque travellers from Syria, Turkey, the Caucasus, Turkestan, Morocco, Lake Chad, and even from Cape Town. The Moors prefer an encampment of tents on the seashore near a favourite mosque. The Cape Town pilgrims, who are perhaps the least numerous, are Mussulmans descended from the old Arab traders who have intermarried with the colonials in Cape Colony and they all talk English. One woman this year claims Irish descent. The khans are yellow-washed with lime before and after their annual occupation but they are badly ventilated and some of them smell horribly of underground cesspools which can never be deep because of the high level of the subsoil water. The women with their children lodge on the upper floor of the khans. The Egyptian contingent of pilgrims this year will number about 5000, being only half the number of last year. The present arrangements for protection from returning pilgrims are as follows. On their return journey from the holy places all pilgrims of all nationalities are stopped at Tor to undergo quarantine and disinfection according to regulations which depend upon the then state of health at Mecca. After leaving Tor the non-Egyptian pilgrims pass through the Suez Canal and are not allowed to land in Egypt. The Egyptian pilgrims, on the other hand, are visited by the male or female quarantine officers when the ship reaches Suez and if any cholera or plague be discovered on board the steamer all the passengers are sent back to Tor. If the ship be passed as healthy she moors alongside the pilgrim wharf specially set apart for this purpose and divided off by barriers from the rest of the quay and the pilgrims are allowed to land one by one, their passports are examined and their addresses are taken, and the list is forwarded to the sanitary inspector of the district to which they are going. As a second line of defence every pilgrim is then individually seen by Dr. Creswell, the medical officer of the port, who allows the obviously healthy to proceed without delay but keeps all the doubtful under observation for a thorough examination. After a detailed examination each man is either passed as healthy or is transferred to the isolation hospital where his disease is thoroughly investigated. This is the only way of knowing whether a returning pilgrim is suffering from diarrhœa, dysentery, or cholera, or whether his fever is due to plague or to malaria, his enlarged glands to tubercle or to plague, and his pneumonia to influenza, to plague, or to the relatively innocent pneumococcus.

Cairo, Jan. 9th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Report of the Surgeon-General of the Public Health and Marine Hospital Service of the United States for 1904.

THIS report, which has just been issued, states that at the close of the fiscal year 1904 the commissioned corps of the service consisted of 118 officers as follows: the surgeon-general, six assistant surgeons-general, 25 surgeons, 36 passed assistant surgeons, and 50 assistant surgeons. During the fiscal year 840,714 immigrants were inspected by officers of the service to determine their physical fitness for admission as prescribed by the immigration laws. By far the greater number of these were landed at New York, and of 633,811 who arrived at that port 1368 were deported, 756 of these being sent back suffering from trachoma. Boston received 80,017 immigrants 106 of whom were deported. The immigration to Baltimore was 56,371 of whom 98 were deported. Acting Assistant Surgeon Safford of Boston says in his report that there seems to be a decided increase in the physically and mentally defective immigrants from Great Britain and Ireland. The report of the division of sanitary reports and statistics shows a total of 25,106 cases of small-pox in the United States for the fiscal year 1904. The total for the previous fiscal year, 1903, was 42,590 cases, so that the numbers for 1904 are a very substantial decrease. The surgeon-general recommends the establishment of a leprosarium in the continental United States. Plague, which has existed in San Francisco since March, 1900, though reported occasionally during 1904, has steadily diminished. The current number of the report contains 640 pages of reading matter and is replete with valuable information and statistics relating to public health. It contains, moreover, several original papers of much scientific and medical interest contributed by officers of the service. The volume reflects great credit upon Surgeon-General Walter Wyman and the officers of the service.

Poisoning by Wood Alcohol.

The fatalities which have occurred recently in Russia as a result of poisoning by wood alcohol have again attracted the attention of the medical profession of the United States. Until about a year ago the methyl alcohol in use in Russia was too repugnant to taste and smell to be used as a beverage. In the early part of 1904, however, "purified" deodorised wood alcohol, known in the United States under the name of "Columbian spirits," was introduced into Russia, since which time 35 cases of blindness and death from the internal use of wood alcohol have been recorded. As in the United States, methyl alcohol has been used in Russia in the manufacture of beverages and internal remedies. When more than 20 persons died in New York some few months ago from drinking spirits adulterated with wood alcohol the public were thoroughly aroused and the newspapers clamoured for legislative action but the circumstances now seem to be almost forgotten.

The Atmosphere of the New York Subway.

Owing to the agitation in the lay journals with regard to the impure condition of the air of the New York subway Professor Chandler was called in to make an investigation into the matter. His report states that the air of this partially underground railway is, considering the circumstances, remarkably free from impurities and that statements to the contrary rest on no sound foundation. Notwithstanding this expert opinion a feeling still exists in the minds of many that there is room for improvement in the conditions prevailing in the subway. At a meeting of the advisory board of the New York health department held on Dec. 13th, 1904, many members expressed the opinion that the present stone roadbed was unsuitable and that to render the air pure a new roadbed should be made. This should be smooth so as to permit of sweeping and thorough cleansing, an impossible task under existing conditions.

Jan. 9th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Infectious Disease in Victoria.

THE return of infectious diseases for the last fortnight, presented at the last meeting of the Board of Public Health of Victoria, showed the following comparison between the corresponding periods of last year and this. Typhoid fever: for the State—1903, 16 cases, 2 deaths; 1904, 19 cases, 1 death; for the metropolitan area—1903, 8 cases, 1 death; 1904, 9 cases, no deaths. Diphtheria: for the State—1903, 30 cases, 4 deaths; 1904, 78 cases, 5 deaths; for the metropolitan area—1903, 19 cases, 3 deaths; 1904, 31 cases, no deaths. Scarlet fever: for the State—1903, 47 cases, 1 death; 1904, 21 cases, no deaths; for the metropolitan area—1903, 35 cases, 1 death; 1904, 10 cases, no deaths. A Bill is now before the State Parliament dealing with the Queen Victoria Infectious Diseases Hospital. Its object is to compel all the municipalities concerned to contribute to its maintenance. Since Oct. 1st, when the hospital was opened, 63 patients have been admitted.

Prevention of Tuberculosis.

A deputation from the local branch of the National

Association for the Prevention of Consumption recently waited on the Chief Secretary of New South Wales to ask for assistance in spreading amongst the people a knowledge of the best methods of preventing the increase of the disease. The deputation asked the Government to print 100,000 leaflets and to allow these to be distributed in the institutions under Government control. The Government was further asked to establish a hospital for incurable cases of consumption. The Minister replied that the Government printing was not under his department. He could see no objection to the distribution of the leaflets as desired. The establishment of a hospital for incurable cases seemed reasonable; he could not promise, however, that the Government would erect it but the matter would receive consideration. Another deputation, from the Queen Victoria Homes for Consumptives, also asked the Chief Secretary for an increased subsidy. It was stated that in the year 1898 the subscriptions to the homes totalled £834 and in 1899 they amounted to £643 and no subsidy was received in either of those years. In 1901 the subscriptions were £658 and the subsidy amounted to £600; in 1902 the subscriptions were £978 and the subsidy was £804; and in 1903 the subscriptions reached £1455, with a subsidy of £1000. The bare cost of maintaining the homes last year was £4000, so that the committee had been compelled to encroach on the capital fund. It was asked that this year the sum of £2000 at least should be placed upon the Estimates to be available for the homes on the £ for £ basis. The committee had already received £1700 this year in subscriptions. Next year there would be about 22 extra beds available at Wentworth Falls Sanatorium, which would mean an increase of £1100 per annum in the expenditure. The committee was doing a work which would otherwise have to be carried on by the Government, since it was the consumptive poor for whom it was providing. Last year 113 patients were received at the Thirlmere Home and 50 at Wentworth Falls. The committee had received no money from the Government towards its building fund and had received nothing from the Government for pauper patients. The Chief Secretary said that he recognised the noble work which the homes were doing and he was also impressed with its importance from an economic aspect. He understood that £1000 were already placed on the Estimates and he could not say without consultation with his colleagues what the Government was prepared to do about providing an additional £1000. He would, however, make a recommendation to the Cabinet on the matter. —The Kronheimer wing for consumption at the Austin Hospital, Melbourne, is in a peculiar position. Ever since the committee of the Austin Hospital decided to accept Mr. Kronheimer's gift and to erect the building, the municipal authorities at Heidelberg have strenuously protested against the proposal, and the successive Ministers of Health have been interviewed and have stated their antagonism to the proposal. In spite of this the committee has gone on with the building. Now it is finished, but it cannot be opened for patients until authority is given by the Board of Health. Under the powers of the Health Act the Minister of Health can supersede the board and in this case did so, refusing to sanction the building, and when application was made to the board for formal permission to open the board referred the committee to the Minister. The committee waited on the Minister and asked him to sanction the opening but so far he has not acceded to the request.—At the last meeting of the committee of the Victorian Homes for the Aged and Infirm a letter was read from the chairman of the Board of Health asking whether the committee would take under control buildings to be erected by the Government close to the committee's institution for the treatment of consumption. After some discussion it was decided that the committee would accept the management of the proposed consumption hospital provided the financial arrangements were satisfactory.

Hospital Affairs.

The new wards at the Stawell Hospital were formally opened on Nov. 25th, 1904, by Sir John Forrest. He said that the wards had been built and fitted with the most modern requirements by Mrs. W. H. Syme as a memorial of her late husband, Dr. Syme, whose long and valuable services to the hospital and to Stawell well deserved so fitting a memorial. He felt sure that the people of Stawell would never forget the work of Dr. Syme and that his memory and that of his wife, who had erected such splendid buildings, would always remain green.—Dr. John Williams has resigned his position as physician to the Melbourne Hospital. In recognition of his long services, extending over 30 years, the committee appointed him consulting physician. Dr. W. R. Boyd, senior physician to out-patients, was appointed physician to in-patients in place of Dr. Williams. Dr. J. Johnston was appointed honorary anæsthetist in place of Dr. L. J. Balfour, resigned.

Medical Examination of Pilots.

The Marine Board of Victoria has adopted regulations for the pilot service which will come into force as soon as gazetted. They provide that subsequently to the nomination of a candidate for a vacancy he shall be examined by a medical practitioner nominated by the Board and certified to be qualified, mentally and physically, to perform the duties of a pilot and also by an ophthalmic surgeon and the fact certified that the applicant's eyesight is unimpaired and satisfies the standard prescribed. Every pilot, whether licensed before or after the coming into force of the regulations, until he attains the full age of 50 years, shall be examined and passed by a medical practitioner to be approved by the Marine Board as physically and mentally fit to continue to perform his duties as a pilot at intervals of not more than 24 calendar months and after having attained that age until he attains the full age of 60 years, at intervals of not more than 12 calendar months, and in the case of a pilot who under the regulations does not necessarily retire at the age of 60 years, after such pilot attains the age of 60 years at intervals of not more than six calendar months. Every pilot until he arrives at the full age of 60 years, whether licensed before or after the coming into force of the regulations, shall at intervals of not more than 12 calendar months, and in the case of a pilot who under the regulations does not necessarily retire at the age of 60 years, after he attains that age at intervals of not more than six calendar months, shall have his eyes examined and vision tested and passed as satisfying the prescribed standard by an ophthalmic surgeon to be approved by the Marine Board. If on the occasion of any examination or testing of a pilot or of his eyesight or vision any defect is discovered which in the opinion of the medical examiner may within a variable time render the pilot unfit for service, such pilot shall submit himself for re-examination within lesser intervals. Re-examination in case of casualty and examination after absence from duty are provided for. It is further stated that every person to whom may be granted, after the coming into operation of the regulations, a licence to act as a pilot shall retire from service upon attaining the age of 60 years. In the case of a pilot who has not yet attained the age of 65 years the sufficiency of any licence held by him after he attains the full age of 60 years, whether before or after the coming into operation of these regulations, is conditional upon his presenting himself from time to time before the Marine Board when required and being permitted by the Marine Board to continue on service. Such permission shall not relieve the pilot from satisfying the requirements of the regulations as regards examination at the prescribed intervals. If the pilot challenges the correctness of the report of the medical practitioner or the ophthalmic surgeon his case may be examined into by a special board of three examiners, members of the medical profession. Every applicant for appointment as a pilot must be quite free from any sign of organic disease or degeneration, and be in general up to the first-class standard of health required by an insurance society of good standing.

Civil Ambulance Corps.

The annual report of the Civil Ambulance and Transport Corps of the St. John Ambulance Brigade, presented to the annual meeting, stated that 1605 cases had been attended to, the distance travelled being 6207½ miles. The total number of cases taken to the hospitals was 1100. Of these 469 were conveyed to the Sydney Hospital, 271 to the Royal Prince Alfred Hospital, and 106 to private institutions. From the inception of the brigade 14,774 persons have received the benefit of its services. After the amalgamation the headquarters, Balmain, and Newtown ladies' branches formed themselves into a nursing division and had been of great assistance to the corps. Notwithstanding that every effort had been made to minimise the expenditure the accounts for the eight months showed a deficiency of £114 6*s.* 2*d.* It was very necessary that the funds should be largely augmented during the current year if the corps was to maintain its proper standard of efficiency and usefulness. The staff had ably maintained its reputation for energy and attention to duty.

The Supply of Medical Practitioners in Victoria.

The annual report of the University of Melbourne for the year 1903-04 shows that the number of medical students attending lectures is 251.

Medical Man charged with Perjury.

An extraordinary charge has been partly investigated by the St. Kilda bench of magistrates. Mr. Paris Nesbit, K.C., of South Australia, a well-known but eccentric barrister who has been more than once committed to a lunatic asylum, charged Dr. R. E. Schlesinger with perjury when giving evidence that Mr. Nesbit was a lunatic in the year 1885. In consequence of the certificates of Dr. Schlesinger and Dr. Simmonds, since dead, Mr. Nesbit was committed to an asylum and detained there from April 29th to July 29th, 1885. He now alleges that Dr. Schlesinger's statements were false. He called several lay witnesses, including the Chief Justice, to say that they thought him sane at the time he was committed. He then asked for an adjournment which was granted.

Death of Dr. D. A. Gresswell.

The State of Victoria has suffered an incalculable loss by the death of Dr. Dan Astley Gresswell, chairman of the Board of Public Health. He was unquestionably one of the most capable officers who ever administered an important department. He had a most comprehensive and detailed knowledge of everything pertaining to hygiene and public health; he worked indefatigably in the administration of his department; scrupulous and firm, but always courteous, he soon earned and held the esteem and respect of the whole community. He set before him an extremely high ideal of public duty and strove to realise it with extraordinary energy and enthusiasm. Dr. Gresswell was born on Sept. 11th, 1853, at Louth, Lincolnshire. He was one of the 12 sons of Mr. Dan Gresswell, a veterinary surgeon, who was widely known for his skill and scientific attainments and who did much to raise veterinary medicine to a higher and more scientific level. Dr. Gresswell was educated at Oxford, where he took his M.A. and M.D. degrees, his medical studies being carried on at St. Bartholomew's Hospital and School. He had a brilliant career at college, gaining the Radcliffe Travelling Fellowship. His thesis on the natural history of scarlet fever attracted considerable attention and is recognised as the authoritative work on the subject. He early turned his attention to hygiene and public health and obtained an appointment as assistant inspector of the Local Government Board. He was recommended by Sir Richard Thorne for the post of medical inspector of the new board of public health of Victoria and was appointed to that post in 1890, commencing duty on March 25th of that year. He immediately made exhaustive inquiries into the sanitary condition of Melbourne and of Victoria and made numerous recommendations which, though causing many protests from vested interests, have been practically carried into effect. He was really the author of numerous legislative measures, notably on food adulteration, meat supervision, and milk supervision, and spread broadcast through the State numerous wall sheets and papers on the prevention of influenza, typhoid fever, and other infectious and epidemic diseases. In 1894 he was appointed chairman as well as medical inspector of the board. He worked persistently and, in face of much opposition, with steadfast courage and tact to improve the health of Victoria and to keep the State free from outbreaks of epidemic and infectious disease, and his efforts must have saved the community thousands of pounds. It was almost entirely due to his efforts that Victoria escaped the plague which played such havoc in the neighbouring states. He took a warm interest in the profession and was president of the Medical Society of Victoria and of the Victorian branch of the British Medical Association. Dr. Gresswell's health began to fail in November, 1898, when he had an attack of septic cholangitis which kept him from work till May, 1899. He seemed fairly well until last February when he had a similar and severe attack. He resumed duty in May but was obviously weak. On Nov. 23rd he was again attacked and gradually got weaker and died on Dec. 11th. The funeral was attended by a large number of prominent men, including the Premier, the Chief Secretary, a representative of the Governor, representatives of the medical societies and various public bodies, and many leading medical men. He leaves a widow but no children.

Death of Dr. W. Finlay.

Dr. William Finlay, formerly of Balmain, New South Wales, died recently at Bowenfels, where he had gone to recruit his failing health.

Dec. 5th, 1904.

Obituary.

THOMAS WOODS, M.D. GLASG., L.R.C.S. IREL., M.R.C.S. ENG., L.A.H. DUB., L.M. DUB.

Dr. Thomas Woods, who died on Jan. 5th at Birr (or Parsonstown), King's Co., Ireland, graduated in 1839 and attained a great reputation as a general practitioner and was held in the highest esteem by the medical profession and the public. At the time of his death Dr. Woods was in the ninetieth year of his age. He was the author of "Phthisis," "Lord Rosse's Telescope," and "Reasons against the Theory of Evolution," and contributed numerous articles to the medical and scientific journals. His series of papers which appeared in the *Philosophical Magazine* in 1853 on the "Heat of Chemical Combinations" caused considerable stir in the scientific world and contributed to the foundation of "thermo-chemistry." He was also interested in photography since the time it was in its infancy and did much to advance the art to the perfection to which it has at present attained. He enjoyed for a long time a large and lucrative practice and held up to the present year all the principal Poor-law and other appointments in the town. From a personal point of view he presented the character of the philanthropist. He was always willing to help the sick and needy and was unwearied in performing deeds of mercy with no thought for his own individual advantage, while his manner of living was quite simple. He was twice married and leaves a large family to deplore their loss. Four of his sons are in the medical profession.

DAVID MITCHELL ARTHUR, M.B., C.M. ABERD., J.P.

THE announcement of the unexpected death of Dr. D. M. Arthur of Cults, Aberdeenshire, which took place on Jan. 9th, was received throughout the district with general regret and he will be deeply mourned by the whole community among which he had laboured for over 20 years. Until about the end of 1904 Dr. Arthur was assiduously engaged in professional duty and only his more intimate personal friends were aware of his illness. He was the third son of the late Rev. David Findlay Arthur, for 50 years Free Church minister of Banchory-Devenick. After the completion of his medical curriculum he graduated at Marischal College, Aberdeen, in 1880 and proceeded to Ceylon where he practised for about two years but his health breaking down he returned to Scotland and started the practice of his profession in Cults. He applied himself with zeal and success to his work, winning in a high degree the confidence of his patients and the esteem and affection of a wide circle of friends. Several years ago he was made a justice of the peace and he held several public appointments the duties of which he discharged with scrupulous fidelity. He was medical officer of the parishes of Peterculter and Maryculter and for the County Hospital at Summerfield, in conjunction with Dr. D. Maver. Dr. Arthur, who was unmarried, is survived by a sister and two brothers, one of the latter being Dr. Alexander T. Arthur of Cults. The deceased gentleman was in his fifty-first year.

JOHN FRASER, M.B., C.M. ABERD.

THE death took place on Jan. 9th, at Pitchaish House, Ballindalloch, of Dr. John Fraser, youngest and last surviving son of Mr. Hector Fraser of Aberdeen. Dr. Fraser graduated as M.B., C.M. at the University of Aberdeen in 1903 and after acting as a locum-tenent in Preston he went, about a fortnight ago, to Ballindalloch in a similar capacity, where he contracted a severe cold which developed into pneumonia. Dr. Fraser was very popular with his

patients. His death is all the more sad from the fact that his brother, Mr. Hector Fraser, died in May last.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations and having conformed to the by-laws and regulations have been admitted Fellows of the College:—

John Arthur Hayward, M.D. Lond., L.R.C.P. Lond., St. Bartholomew's Hospital, Diploma of Member dated Feb. 12th, 1899; Cecil Edward Marriott, M.C. Camb., L.R.C.P. Lond., Cambridge University and University College Hospital, Member Feb. 13th, 1896; Francis Joseph Hassiacher, M.B. Lond., L.R.C.P. Lond., King's College Hospital, Feb. 11th, 1897; John Clay, M.B., B.S. Durham, L.R.C.P. Lond., Durham University, Member May 4th, 1898; Herbert Dean Pollard, M.B. Lond., L.R.C.P. Lond., London Hospital, Member July 27th, 1899; Donald Johnston McGavin, M.D. Lond., L.R.C.P. Lond., Masons College, Birmingham, and London Hospital, Member Nov. 2nd, 1899; Charles Ferrier Walters L.R.C.P. Lond., University College and Royal Infirmary, Bristol, Member July 25th, 1900; Reginald Cheyne Elmslie, M.B., B.S. Lond., L.R.C.P. Lond., St. Bartholomew's Hospital, Member May 9th, 1901; George Ernest Waugh, M.D. Lond., B.A. Camb., L.R.C.P. Lond., Cambridge University and University College Hospital, August 1st, 1901; William Francis Harriott Coke, L.R.C.P. Lond., St. George's Hospital, Member Oct. 7th, 1901; Ernest Rock Carling, M.B., B.S. Lond., L.R.C.P. Lond., Westminster Hospital, Member Nov. 14th, 1901; Somerville Hastings, M.B., B.S. Lond., L.R.C.P. Lond., Middlesex Hospital, Member Feb. 13th, 1902; Hugh Davies-Colley, B.C., M.A. Camb., L.R.C.P. Lond., Cambridge University and Guy's Hospital, Member May 8th, 1902; Harold Upcott, L.R.C.P. Lond., St. Thomas's Hospital, Member May 8th, 1902; Noël Everard Waterfield, M.B. Lond., L.R.C.P. Lond., St. Bartholomew's Hospital, Member May 8th, 1902; Joseph Ebenezer Adams, L.R.C.P. Lond., St. Thomas's Hospital, July 31st, 1902; Harold Ashton Lyth, M.B., B.S. Lond., L.R.C.P. Lond., University College Hospital, July 31st, 1902; William Arthur Rees, M.B. Lond., L.R.C.P. Lond., Middlesex Hospital, Member July 31st, 1902; John Hay Burgess, M.B. Lond., L.R.C.P. Lond., Lieut. I.M.S., St. Mary's Hospital, Member Nov. 13th, 1902; Arthur Robertson Bralley, M.A., M.B., B.C. Camb., L.R.C.P. Lond., Cambridge University and Guy's Hospital, Member Feb. 12th, 1903; Norman Carpmael, L.R.C.P. Lond., St. Thomas's Hospital, Member Feb. 12th, 1903; Charles Bernard Goulden, M.A., M.B., B.C. Camb., L.R.C.P. Lond., Cambridge University and Middlesex Hospital, Member August 4th, 1903; Walter Lidwell Harnett, M.A., M.B., B.C. Camb., L.R.C.P. Lond., Cambridge University and St. Thomas's Hospital, Member Feb. 12th, 1903; Archibald Trevor Moon, L.R.C.P. Lond., London Hospital, Member Feb. 12th, 1903; Kenneth Black, L.R.C.P. Lond., L.D.S. Eng., Guy's Hospital, Member August 4th, 1903; Thomas Jefferson Faulder, B.A. Camb., L.R.C.P. Lond., August 4th, 1903; Neville Ivens Spriggs, M.B., B.S. Lond., L.R.C.P. Lond., Guy's Hospital, Member August 4th, 1903; Frederick Henry Parker, B.A., M.B., B.C. Camb., L.R.C.P. Lond., Cambridge University and Guy's Hospital, May 12th, 1904; Robert James Ferguson, M.D., M.Ch. R.U.I., Queen's College, Belfast, King's College, and Middlesex Hospital, not a Member; Angus McNab, B.A., B.Sc., M.B., Ch.B. Edin., New Zealand and Edinburgh Universities, and London Hospital; and Herbert Bell Tawse, M.B., Ch.B. Aberd., Aberdeen University, King's College, and London Hospital, not a Member.

The following gentlemen have passed the first professional examination in anatomy and physiology for the diploma of Fellow:—

Sydney Chalmers Allen, M.D., B.Ch., B.Sc. New Zealand, University of New Zealand, Dunedin Hospital, and King's College; Mathew Robert Blake, M.D., C.M. Toronto, M.R.C.S. Eng., L.R.C.P. Lond. Toronto University, King's College, and Middlesex Hospital; Harry Blakeway, St. Bartholomew's Hospital; Godfrey Eustace Charles, M.R.C.S. Eng., L.R.C.P. Lond., Queen's College, Cork, University and King's Colleges; Charles Coley Choyce, M.D. Edin., B.Sc. New Zealand, University of New Zealand and Dunedin Hospital, and Edinburgh University; James Law Falconer, M.B., Ch.B. Vict., Owens College and Royal Infirmary, Manchester, and King's College, London; Duncan Campbell Lloyd Fitz Williams, M.B., Ch.B. Edin., F.R.C.S. Edin., Edinburgh University; Alexander Fleming, St. Mary's Hospital; Thomas Howard Foulkes, M.R.C.S. Eng., L.R.C.P. Lond., Captain, I.M.S., St. Bartholomew's Hospital and King's College, London; Walter Bristow Griffin, St. Bartholomew's Hospital; Thomas Shirley Hele, B.A. Camb., Sc. Lond., Cambridge University and St. Bartholomew's Hospital; Alfred Lucette Home, M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., St. Thomas's, King's College, and Charing Cross Hospitals; Cyril Beresford Howse, M.R.C.S. Eng., L.R.C.P. Lond., London Hospital; Godfrey Martin Huggins, St. Thomas's Hospital; Anson Robertson Jordan, B.A. Camb., Cambridge University and London Hospital; Basil Thorn Lang, B.A. Camb., Cambridge University, St. Bartholomew's and Middlesex Hospitals; Francis Scobie Mackenzie, M.B., C.M. Edin., Edinburgh University and London Hospital; Cecil Edward Marriott, M.B., M.C. Camb., M.R.C.S. Eng., L.R.C.P. Lond., Cambridge University and University College, London; Norman Patterson, M.B., B.Ch. Edin., Edinburgh University and London Hospital; Harry Pierpoint, M.R.C.S. Eng., L.R.C.P. Lond., University College and Royal Infirmary, Liverpool; David Ranken, Durham College of Medicine and King's College, London; Philip Alfred Reckless, St. Bartholomew's Hospital; Robert Townley Slinger, M.B., Ch.B. Vict., Owens College and Royal Infirmary, Manchester; Harold Arthur Robert Edmund Unwin, B.A. Camb., Cambridge University and St. Thomas's Hospital; John Black Ferguson Wilson, Yorkshire College, Leeds (Leeds University); and Edward Musgrave Woodman, St. Bartholomew's Hospital.

85 candidates presented themselves for this examination, of whom 26 passed and 59 were referred. Of the 59 candidates who were referred 33 failed to reach the required standard in both anatomy and physiology, 12 in anatomy only and 14 in physiology only.

MEDICAL MEN CALLED TO THE BAR.—We note the two following names of medical men who have passed the final bar examinations: E. Hugh Snell, M.D., B.Sc. Lond., D.P.H. Cantab., F.R.S. Edin., medical officer of health of the city of Coventry and a member of the Middle Temple; and W. Alfred Brend, M.B., B.Sc. Lond., M.A. Cantab., who is a member of the Inner Temple.

PRESENTATION TO A MEDICAL MAN.—Dr. Ernest W. White, who has just retired from the medical superintendency of the City of London Asylum, Dartford, after nearly 18 years' tenure of office, was the recipient of an illuminated address and a silver tea and coffee service from the members of the visiting committee (past and present) at a dinner given on Jan. 11th by its chairman, Sir George Wyatt Truscott, who, in making the presentation, alluded in felicitous terms to Dr. White's faithful and distinguished services to the Corporation of London. On Jan. 13th Dr. White was also presented by the staff of the asylum with a silver-mounted tantalus as a mark of esteem and regard.

FIFTH RUSSIAN SURGICAL CONGRESS. — On Jan. 10th the Fifth Congress of Russian Surgeons was opened in Moscow with little ostentation by a speech by one of the veterans of Russian surgery, Professor Rein, who had to deplore the thinning of the ranks of the members of the Congress, on the one hand, by the direct demands of the army in the Far East and, on the other hand, by the consequently enormous increase in calls on the attention of those who remain in Russia. Three notable deaths had to be recorded —viz., those of A. A. Bobroff, N. V. Sklifosovski, and K. Ph. Klein, the second of whom, Sklifosovski, said the speaker, "we had begun to place after the great N. I. Pirogoff." The attendance numbered about 100. The president chosen for the Congress was Professor M. S. Subbotin of the St. Petersburg Military Medical Academy.

COMPLIMENTARY DINNER TO MR. PRIESTLEY SMITH.—Mr. Priestley Smith's recent resignation of the post of honorary ophthalmic surgeon to the Queen's Hospital, Birmingham, was made the occasion of a very interesting gathering on Jan. 14th, when his past house surgeons entertained their former chief at a dinner in the Grand Hotel, Birmingham. Dr. C. E. Purslow presided and Mr. Wilfrid Allport acted as vice-president and secretary. Mr. Allport, in proposing "The Guest of the Evening," briefly alluded to the work which had made Mr. Priestley Smith's name so well known, to his great powers as a teacher, and to that unfailing sympathy and kindly help in all their difficulties which ever won for him the love and admiration of all those with whom he was associated. The toast, which was drunk with musical honours, was received with great enthusiasm. Dr. Purslow, before proceeding to make the presentation, spoke of the unanimity with which the idea of the dinner and the presentation had been taken up. He pointed out that of 43 residents who had served under Mr. Priestley Smith during his long tenure of office it was only possible to circularise 36, since two were deceased and five were abroad, thousands of miles away, and would not have had time to reply. Dr. S. Barwise, in supporting, spoke of Mr. Priestley Smith's kindliness of nature and the influence for good that he had always exerted on those with whom he came in contact, citing instances showing his uniform consideration for the patients and all those around him. Dr. Purslow then presented a silver rose-bowl (of the loving-cup pattern) and a pair of massive silver candle-sticks. The bowl bore the following inscription: "Presented to Priestley Smith, Esq., M.B., Ch.M., F.R.C.S. Eng., by his past house-surgeons at the Queen's Hospital, Birmingham, as a token of the great regard and affection in which they hold him." Mr. Priestley Smith, evidently deeply affected by the proceedings, in a characteristic speech warmly expressed his thanks for

the honour that had been shown him and for the presentation, which, he said, would ever be for himself and his family a pleasurable memento of the occasion.

LITERARY INTELLIGENCE.—Messrs. P. S. King and Son will shortly publish a book on "Infantile Mortality and Infants' Milk Depôts," by Dr. G. F. McCleary, the medical officer of health of Battersea, in which district a municipal milk depôt has been engaged in feeding babies for over two years. The importance of improper feeding as a factor in infantile mortality is, it is stated, fully explained in the work and an account is given of the history and practical working of the infants' milk depôts in this country and in America, and of the similar institutions—the "Consultations de Nourrissons" and "Gouttes de Lait"—in France. Full particulars are given as to the cost of the various appliances necessary for the work of a milk depôt, which should be helpful to members of the medical profession and of local authorities who wish for information on the subject. The book is illustrated.

WESTMINSTER GENERAL DISPENSARY. — This institution, which was founded in 1774 and is lodged in 9, Gerrard-street, has recently been renovated and brought up to date through the generosity of the treasurer, Mr. J. F. Blackwell. The house, which still bears marks of its having been one of the old Soho mansions, has been admirably adjusted for its present purposes. A new heating apparatus has been put in, the resident medical officer's quarters have been provided with a bath-room, electric light has been installed, and the floors in the rooms set aside for the reception of patients have been laid in marble mosaic. This, of course, makes cleanliness a far easier matter to obtain than in the days when the old-fashioned ordinary planking was used. The staff consists of two consulting surgeons, one consulting physician, three visiting physicians, three visiting surgeons, a dental surgeon, and a resident medical officer. The institution does good work in a quarter which is now very poor, though about 160 years ago it was one of the most fashionable parts of London.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held at 11, Chandos-street, London, W., on Jan. 11th, Mr. Christopher Heath, the President, being in the chair. The President announced the death on Jan. 5th of Mr. J. B. Blackett, who had filled the office of secretary to the society for 37 years, and the following motion was carried unanimously:—

That this court has received with deep regret the announcement of the death of Mr. Joseph Blackett, M.R.C.S., who has so ably filled the office of secretary to the Society for the Relief of Widows and Orphans of Medical Men since 1868. The court desires to place on record its appreciation of the valuable services of Mr. Blackett to the society and of his unvarying kindness to, and consideration for, the annuitants of the charity, and wishes to convey to his family its sincere sympathy in their bereavement.

52 widows and 16 orphans had received a Christmas present, amounting in all to £574, in addition to their annuities. A sum of £1293 was allotted in payment of the half-yearly grants to the annuitants. Four new members were elected and one new application on behalf of a widow was received. Four applications for the vacant office of secretary were received and considered and Mr. Edward J. Blackett, M.R.C.S., L.R.C.P., was elected to succeed his father as secretary.

AMERICAN MOSQUITO EXTERMINATION SOCIETY.—The second annual convention of the American Mosquito Extermination Society was held in New York and in Brooklyn on Dec. 15th and 16th, 1904. According to the report of the proceedings given in the *Scientific American* of Dec. 31st, the opening meeting was held at the New York Aquarium, where the process of mosquito hatching was shown by living examples and Mr. Frank Moss read a paper containing suggestions as to the adoption of uniform State laws pertaining to mosquito extermination. At the evening meeting two papers were read, one by Colonel W. C. Gorgas, M.D., on the Sanitation of the Panama Canal Zone so far as Mosquito Extermination relates to it; and the other by Dr. E. Porter Felt, New York State entomologist, on Diversities among New York Mosquitoes. On Dec. 16th the following papers were read or demonstrations given: by Dr. Walter Wyman, surgeon-general, and Dr. J. M. Roseneau, director of the United States Hygienic Laboratory, Washington, on the Methods of Examination and Dissection of Mosquitoes for Parasites; by Dr. Thomas Darlington, health commissioner, on Mosquito Extermination in New York City; and by Dr. Quitman Kohnke, president of the New Orleans Board of Health, on the Methods of Transmission of Yellow Fever by Mosquitoes and on the Non-infectiveness of Yellow Fever apart from Mosquitoes.

THE LEEDS TRIENNIAL MUSICAL FESTIVAL.—Most of the medical charities of Leeds are interested in the success of the Triennial Musical Festival, for the committee is in the habit, after making provision for an adequate reserve fund, of distributing the profits among them in certain proportions. The first festival was held in 1858; since the year 1874 they have been held every three years, and as a result of 12 festivals a sum of upwards of £20,000 has been allotted to the charities. Great though the musical success of the 1904 festival was the financial results have been disappointing, for the profits amount only to £300. This is attributed to the period of depression in trade which has affected directly or indirectly all classes of the community. After much discussion by the committee it was agreed to distribute the sum of £1000 among the charities by drawing for the first time on the reserve fund which would then remain at £4000. This decision has met with general approval. Every one admits that the primary object of the festival is musical, but there are many who are influenced to become subscribers by their interest in the charities of Leeds. The money has been distributed as follows:—General Infirmary, £560; Leeds Public Dispensary, £120; Hospital for Women and Children, £120; and £40 to each of the following—viz.: District Nurses' Association, Blind Institution, Tuberculosis Association, Cookridge Convalescent Home, and Workpeople's Convalescent Homes.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CLOSE, NAPIER, L.R.C.S. Irel., L.R.C.P. Edin., has been appointed Medical Examiner for Recruits for the West Somerset Imperial Yeomanry, at Chard.

HODGSON, H., M.B., M.S. Lond., has been appointed Certifying Surgeon under the Factory Act for the Alresford District of the county of Hants.

SCOTT, C. R., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory Act for the Abingdon District of the county of Berks.

SNELL, B. H., M.D., B.Sc. Lond., D.P.H., has been appointed Honorary Sanitary Officer to the Coventry and Warwickshire Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £100 per annum, with apartments, board, and attendance.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—Honorary Second Assistant Anæsthetist.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Honorary Ophthalmic Surgeon.

CHESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with residence and maintenance.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary £150 per annum, increasing to £350, with apartments, board, attendance, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Pathologist and Registrar. Honorarium £100 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and washing.

FARRINGDON DISPENSARY AND GENERAL LYING-IN CHARITY, 17, Bartlett's Buildings, Holborn-circus, E.C.—Honorary Dental Surgeon.

HALESWORTH, PATRICK STEAD HOSPITAL.—Surgeon. Salary £50 guineas a year.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM.—Resident Medical Officer for six months. Salary at rate of £50 a year, with board and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Physician. Also Assistant Casualty Medical Officer, unmarried, for six months. Salary £20, with board and residence.

HUDDERSFIELD INFIRMARY.—One Physician, Two Surgeons, and One Ophthalmic and Aural Surgeon (all honorary).

LEEDS GENERAL INFIRMARY.—Resident Medical Officer. Salary £100 per annum, with board, residence, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Surgeon. Salary £100 per annum, with board, residence, &c. Also Resident House Physician. Salary £80, with board, &c.

MANCHESTER, CHORLTON-UPON-MEDLOCK DISPENSARY.—Honorary Medical Officer.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST (Bowdon, Cheshire).—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Fitzroy-square, W.—Anæsthetist.

MONMOUTHSHIRE ASYLUM.—Junior Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

NATIONAL ORTHOPÆDIC HOSPITAL, Great Portland-street, W.—Honorary Assistant Anæsthetist.

NEW HOSPITAL FOR WOMEN, Euston-road.—Three Senior Assistants (female).

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

RANGOON, DUFFERIN MATERNITY HOSPITAL.—Resident Lady Doctor as Superintendent. Salary Rs. 400, rising to Rs. 500, with house, partially furnished.

ROYAL EAR HOSPITAL, Dean-street, Soho-square, W.—Clinical Assistants. Also Honorary Dental Surgeon.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Assistant Surgeon.

SUNDERLAND INFIRMARY.—House Physician, House Surgeon, and Assistant House Surgeon. Salary in each case £100, with board, residence, and washing.

TOTTENHAM HOSPITAL, London, N.—Honorary Assistant Physician. Also Pathologist. Honorarium 20 guineas per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, with board and lodging.

WANGFORD RURAL DISTRICT.—Medical Officer of Health. Salary at rate of £60 a year.

WINCHESTER, ROYAL HANTS COUNTY HOSPITAL.—Honorary Surgeon-in-Ordinary.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £20 per annum, with board and residence.

Births, Marriages, and Deaths.

BIRTHS.

CLARKE.—On Jan. 4th, at Windsor House, Morley, Yorks, the wife of W. Travers Clarke, M.R.C.S., L.R.C.P., of a son.

GARLE.—On Jan. 13th, at Farleigh, Foxley-lane, Purley, the wife of R. H. W. Garle, M.R.C.S., L.R.C.P., of a son.

GRAY.—On Jan. 15th, at 24, Ormskirk-street, St. Helens, the wife of Andrew Gray, M.D., of a son.

SCOTT.—On Jan. 14th, at 62, Belsize Park-gardens, Hampstead, the wife of Sydney Scott, M.S. Lond., F.R.C.S. Eng., of Welbeck-street, Cavendish-square, W., of a son.

TATHAM.—On Jan. 9th, at Castle-street, Abergavenny, the wife of A. L. Tatham, M.D., of a daughter.

MARRIAGE.

UNWIN—HALL.—On Dec. 5th, 1904, at Terrace Congregational Church, Wellington, N.Z., William Howard Unwin, M.D., to Phyllis E. Hall.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*South Wales Daily News, Surrey Advertiser, Hertfordshire Mercury, Windsor and Eton Express, Manchester City News, Bucks Advertiser and Aylesbury News, Westminster Gazette, Army and Navy Gazette, Glasgow Evening Times, Leeds Mercury, Sussex Daily News, Dublin Times, Birmingham Post, Notts Guardian, Dublin Express, Bradford Observer, Sanitary Record, Local Government Chronicle, Mining Journal, The Scotsman, Morning Leader, &c*

Notes, Short Comments, and Answers to Correspondents.

MALADVERTISEMENT.

OUR attention has been called to an advertisement in various newspapers of the articles issued by the Capsuloid Company of 31, Snow-hill, London, E.C. The advertisement implies, and we must believe it is intended to imply, that THE LANCET has recommended the wares of the Capsuloid Company, Limited, to prevent hair from falling out or turning prematurely grey. Of course, we have done nothing of the sort, though we can hardly hope that our repudiation of the opinion attributed to us will cause the advertisers to refrain from their incorrect statements or some papers from printing such statements in return for cash. We noticed favourably certain capsuloids manufactured by this company as a method of administering iron. It would seem that the proprietors of the Capsuloid Company having assumed for trade purposes that iron well administered prevents hair from falling out or turning grey consider themselves justified in publishing or at any rate hinting that THE LANCET has recommended capsuloids for this purpose. We do not think highly of the morality or manners of such tactics.

TWO QUERIES CONCERNING TOBACCO.

To the Editors of THE LANCET.

SIRS,—Perhaps the following information will interest your readers. "H. D." asks for "anti-nicotine tobacco." If such a preparation existed it would be useless and would have to be made up with flavouring which is most undesirable—the lighter the tobacco the less nicotine generally.

Dr. James Savege asks the "effect of snuff on the heart." In the course of my association with tobacco, about 25 years, I have known men all this time, every working day, to be inhaling tobacco dust or fumes produced in the process of manufacture. Uninterrupted good health is the general rule of all persons engaged in tobacco proceedings of every kind and generally of large consumers. It would be very interesting to know how often persons suffering from any trouble of upper air surfaces use snuff. Since snuff has almost gone out of use influenza, catarrh, and other troubles seem to have increased and the pernicious cigarette.

I am, Sirs, yours faithfully,

St. Leonards-on-Sea, Jan. 17th, 1905. F. V. CHALMERS.

P.S.—Since the last Budget the mid-rib of the tobacco leaf has largely increased; this is bad, it means buying and consuming about 20 per cent. of "wood." Every consumer should insist now on a guarantee that his "tobacco is made from stripped tobacco and is free from all and every essence or flavouring." Then and only then will he get good tobacco.

To the Editors of THE LANCET.

SIRS,—A brand of tobacco named "Tinco Flake," sold by J. P. Burns, 17, South Exchange-place, Glasgow, is said to have all nicotine extracted and I have smoked it without feeling the usual effect of tobacco

I am, Sirs, yours faithfully,

Jan. 16th, 1905. P. C. S.

THE CHOICE OF AN ANÆSTHETIC.

To the Editors of THE LANCET.

SIRS,—I should be greatly obliged if some of your numerous readers would advise me as to the best and safest anæsthetic to use in minor operations on children (nævi, circumcision, &c.), three or four months and two or three years old respectively, in cold weather in country cottages; also whether Junker's inhaler for chloroform is suitable and safe for young children.

I am, Sirs, yours faithfully,

Jan. 17th, 1905. HECTOR.

WANTED—DIAGNOSIS AND TREATMENT.

To the Editors of THE LANCET.

SIRS,—I shall be glad if any of your readers can help me in the diagnosis and treatment of the case whose history follows. For two or three years a young girl has been attending at my surgery at intervals of two or three months suffering from little septic wounds of the fingers and hands. Unless incised these rapidly advance in the ordinary manner, causing a certain amount of cellulitis. The girl's father is a grocer and she takes an active part in the shop, handling more especially cheese and bacon. In all other respects she is a very healthy girl. No other part of her body is ever affected and no other member of the family presents the symptoms. What is the cause of these sores?

I am, Sirs, yours faithfully,

Jan. 16th, 1905. J. MARSH, M.B. Edin.

A WIND-PRESSURE SIGNAL FOR THE PREVENTION OF RAILWAY ACCIDENTS.

IN this country it is extremely rare for a railway train to be derailed by the force of the wind but such an occurrence has happened and as recently as 1903, when it will be remembered that during the great gale of Feb. 27th of that year a mail train was blown over on Levens Viaduct, on the Furness line, and almost fell into the sea.

According to our contemporary the *Yorkshire Post*, the Furness Railway Company, in order to prevent similar accidents, has now erected an ingenious instrument which will automatically warn the signalmen on duty at Cark and Plumpton when there is unusual wind pressure of sufficient force to be dangerous to trains crossing the viaduct. The apparatus consists of a combined wind-pressure gauge and recorder and is connected with an electric arrangement by means of which bells are set in motion at distant signal-cabins. These bells will continue to ring so long as the velocity of the wind on the viaduct is dangerous to passing trains, consequently all traffic will be stopped until the wind pressure falls below the point of danger.

PLANS FOR AN ASYLUM.

To the Editors of THE LANCET.

SIRS,—Can you or any of your readers tell me where I can see or procure rough plans and specifications for a small asylum for the insane? I have just been appointed medical superintendent of an old asylum the buildings of which would have been considered disgraceful 50 years ago and I intend to obtain the building of a new institution if I possibly can. The asylum would have to be for at least 60 patients and the estimate should include all reasonable modern conveniences and improvements. I shall be glad of any information on the subject.

I am, Sirs, yours faithfully,

Jan. 15th, 1905. MEDICAL SUPERINTENDENT.

WOMEN AND MEALS.

In few of the discussions on physical deterioration has it been brought prominently enough to the front how women generally, and especially housewives and mothers of families of the middle classes and of the artizan and mechanic sections, shirk the duty of preparing proper meals for themselves and their children when the husband and father is absent at business, at the shop, or "inside," to use the phrase employed by the workers in large factories. "Feed the brute" is an aphorism familiar in all classes of society but the necessity for feeding properly also his offspring and their mother does not seem to be equally apparent. There are too many husbands and fathers who could give evidence that when they have questioned their wives on the subject of dinner—the dinner, that is, of the wives and children—more often than not they have been told, "Oh, I didn't stop for any. I was too busy with washing (or cleaning, or sewing, or some other domestic duty) and did not trouble to get dinner at the proper time; then the feeling of hunger went off and I didn't want any dinner." In such circumstances, if the father inquires what the children had he will be told, "I boiled them an egg" or "They fancied a slice of bread and jam," or "They had a lump of bread pudding." This sort of thing continued from day to day cannot be the right way for women and prospective mothers to build up the strength either of themselves or their offspring, and, it should be observed, it is not through compulsion that the mother of the family has no proper dinner but simply through bad management or laziness. When the head of the family comes home to dinner he and the family have proper meals because he demands them for himself, and on such occasions he always finds that the wife and family can eat their meals properly and with relish. He may be told that it is his presence and his company which give his family their good appetites but this is only a roundabout way of stating the truth. He insures the decent dinner and the decent dinner provokes the appetite. The amount to which actual deterioration of the race exists among us has been much exaggerated, but undoubtedly the widespread evil of inattention to meals by the housewives of England is responsible for a good deal of their physical ill-health and that of their offspring. Every general practitioner knows this.

THE TITLE OF DOCTOR.

To the Editors of THE LANCET.

SIRS,—I am an M.B., B.C. Cantab., and write to ask you your opinion whether or not I have any right to style myself "Doctor" on cards, letters, door-plate, &c. I know some M.B.'s who do so but I personally believe that they have no right to the title. Strangely enough, I have some ambitious relatives who become annoyed when I request them not to address me as "Doctor." If I could show them in your esteemed journal a definite statement on this question it would be looked upon as authoritative by them.—I am, Sirs, yours faithfully,

Jan. 18th, 1905. M.B., B.C. CANTAB.

*** There is no "right," but custom sanctions a Bachelor of Medicine being addressed as "Doctor" and we follow this style in our own columns.—ED. L.

THE TREATMENT OF STRICTURE.

To the Editors of THE LANCET.

SIRS,—I have now under my care two cases of gonorrhœa treated about six weeks in the usual way, but both have a contracted urethra about one inch below the meatus; one may be a chancre. There is glandular enlargement in left groin. The other appears simple stricture; in each case the discharge has practically ceased. I shall be glad to learn what would be the best treatment in each case.

I am, Sirs, yours faithfully,

M.R.C.S., L.R.C.P.

*** Six weeks is a rather short space of time for the formation of a urethral stricture and it is possible that our correspondent's suggestion as to one case is correct—namely, that there is a chancre present. If this be so, or if there is any real suspicion that it may be so, mercury should be given in the usual way. If a true fibrous stricture has formed in the urethra, about one inch from the meatus, it may be treated by dilatation with bougies. With fuller details as to the conditions present it might be possible to make more definite suggestions for treatment.—ED. L.

LADY HOSPITAL MANAGERS.

To the Editors of THE LANCET.

SIRS,—Could you or one of your correspondents kindly tell me (1) what hospitals, besides Edinburgh and Bradford, have ladies on the managing committee, and (2) with what success?

I am, Sirs, yours faithfully,

Bath, Jan. 12th, 1905. R. DUCKWORTH.

Mr. W. Somerville.—There are so many missionary societies under whom medical mission work can be undertaken that we cannot advise our correspondent as to any particular one. He might apply to the Society for the Propagation of the Gospel, the Society for Promoting Christian Knowledge, the Universities Mission to Central Africa, the Church Missionary Society, the Archbishops' Mission to the Assyrian Churches, or the Guild of St. Luke. Names and details will be found in any of the Church year books.

A. B.—We always consider it highly inadvisable that an assistant should start in practice in the town where his principal resides. The circumstances alluded to—the absence of a bond and the alleged unfair treatment of the assistant—must determine the ethics of the case and lead the assistant to form his own judgment, but our advice to him is to seek his fortune elsewhere.

M. H.—We do not quite understand our correspondent's question and he has not intrusted us with his name.

Rusholme will obtain all the information that he requires from the Colonial Office.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9. 30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (23rd).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Discussion on Hæmaturia (introduced by Dr. A. E. Garrod and Mr. B. Clarke).

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Casual Communication:—Mr. J. B. Parfitt: An Extreme Case of Saddle-shaped Arch. Paper:—Mr. R. D. Pedley: The Relationship between Dental and other Diseases.

TUESDAY (24th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Mr. H. Lett: An Analysis of 99 Cases of Inoperable Carcinoma of the Breast treated by Oöphorectomy.

THERAPEUTICAL SOCIETY (Apothecaries' Hall, Blackfriars).—Papers:—Dr. Dixon: On the Action of Alcohol on the Heart.—Dr. Gimlette: On the Malay Treatment of Yaws.

THURSDAY (26th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8 P.M. Card Specimens will be shown by Dr. L. Cole-Baker and Mr. W. H. Jessop. 8.30 P.M. Papers:—Dr. F. Fergus: A Case of Malignant Disease of the Conjunctiva.—Mr. A. Lawson: Treatment of Corneal Ulcers with Quinine.—Mr. C. Worth: Notation of Prisms.—Dr. D. J. Wood: Two Unusual Cases of Detachment of the Retina.

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8 P.M. Clinical Evening. Patients in attendance at 8 P.M.

FRIDAY (27th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Exhibition of Clinical Cases followed by Discussion. Patients will be in attendance from 8 to 9 P.M.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (17, Bloomsbury-square, W.C.).—3 P.M. Papers:—Prof. A. W. Crossley: Pharmaceutical Regulations in Germany.—Mr. P. H. Marsden: The Laws relating to Pharmacy in Russia.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Mr. J. Hutchinson, jun.: Fractures and Dislocations, the Additions to our Knowledge since the Introduction of X Rays (with lantern illustrations).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. H. J. Davis: Cardiac Disease: Organic.

TUESDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. Hutchison: Clinique. (Medical.) 5.15 P.M. Mr. H. B. Robinson: Cystic Affections of the Breast.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: Treatment of Various Diseases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Dr. A. E. Giles: Endometritis and Erosion.

WEDNESDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. Collier: Cliniques. (Surgical.) 5.15 P.M. Mr. E. T. Collins: Glaucoma (with lantern illustrations).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Armour: Tumours of the Groin.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration:—Dr. Wylie: Naso-Pharynx.

THURSDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. B. Willett: Anæsthetics.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Armour: Tumours of the Groin.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Abercrombie: Demonstration of Medical Cases. (Post-Graduate Course.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. H. W. Carson: The Present Position of Gastric Surgery.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture: Dr. J. E. Squire: Adventitious Sounds in Pulmonary Disease and their Significance. (Post-Graduate Course.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Mr. Malcolm: Some Points in Pelvic Diagnosis.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Voelcker: Typhoid Fever in Children.

FRIDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. L. Paton: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Armour: Tumours of the Groin.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1904, which was completed with the issue of Dec. 31st, and the Title-page to the Volume, were given in THE LANCET of Jan. 7th.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 19th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Jan. 13	30·42	S.W.	...	46	44	34	34	35	Overcast
,, 14	30·37	S.	...	65	43	34	36	37	Fine
,, 15	30·12	S.E.	...	46	41	33	31	33	Fine
,, 16	29·68	S.E.	...	43	43	24	Fzn.	24	Cloudy
,, 17	29·20	W.	0·54	48	44	24	40	41	Foggy
,, 18	29·64	W.	...	53	43	34	35	36	Fine
,, 19	30·31	S.W.	...	37	37	31	Fzn.	32	Foggy

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